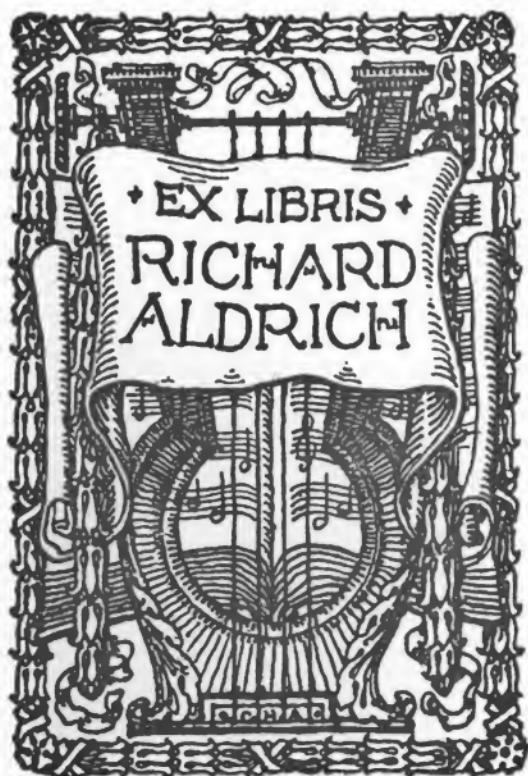


Proceedings of the Musical Association

Musical
Association (Great
Britain)

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PROCEEDINGS 42
OF THE
MUSICAL ASSOCIATION

FOR THE INVESTIGATION AND
DISCUSSION OF SUBJECTS CONNECTED WITH THE
ART AND SCIENCE OF MUSIC.

FOUNDED MAY 29, 1874.

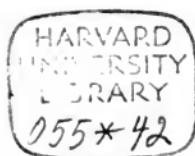
SEVENTEENTH SESSION, 1890-91.

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RULES AND REGULATIONS

*Passed at Five Special General Meetings of the Members, held
at 27, Harley Street, W., on February 7 and April 3, 1876,
on January 6, 1879, on December 6, 1886, and on June 2,
1890.*

OBJECTS AND CONSTITUTION.

THIS Association is called the "MUSICAL ASSOCIATION" and is formed for the investigation and discussion of subjects connected with the Art, Science, and History of Music; and is intended to be similar in its organisation to existing Learned Societies.

It is not intended that the Association shall give concerts, or undertake any publications other than those of their own Proceedings, or the Papers read at their Meetings.

MEMBERS.

The Association shall consist of practical and theoretical musicians, as well as those whose researches have been directed to the science of acoustics, the history of the art, or other kindred subjects.

Any person desirous of being admitted into the Association must be proposed by two members. Foreigners resident abroad and distinguished in the Art, Science, or Literature of Music, may be nominated by the Council for election as Honorary Members of the Association.

Elections will take place by ballot of the members present at any of the ordinary meetings, and one adverse vote in four shall exclude.

No newly elected member shall be entitled to attend the meetings until the annual subscription be paid.

SUBSCRIPTION.

The annual subscription to the Association is one guinea, which shall become due on the 1st of November in each year.

Any member *may*, upon or at any time after election, become a life member of the Association by payment of a composition of £10 10s. in lieu of future annual subscriptions, but in addition to any annual subscription previously paid or due from such member. Such sums shall from time to time be invested in legal security in the names of Trustees, to be appointed by the Council.

Any member intending to resign his membership shall signify his wish by notice in writing to the Hon. Sec. on or before the 31st of October, otherwise he shall be liable for his subscription for the ensuing year.

MEETINGS.

An ordinary meeting shall be held on the second Tuesday in every month, from November to June inclusive, at 8 P.M., when, after the despatch of ordinary business, Papers will be read and discussed, the reading to commence not before 8.15 P.M.

An annual general meeting of members only shall be held at 8 P.M. on the last Tuesday in October, to receive and deliberate on the Report of the Council, and to elect the Council and officers for the ensuing year.

Special general meetings may be summoned whenever the Council may consider it necessary; and they shall be at all times bound to do so on receiving a requisition in writing from five members, specifying the nature of the business to be transacted. At least one week's notice of such special meeting shall be given by circular to every member, and ten members present at any general meeting shall constitute a quorum.

Every member shall have the privilege of introducing one visitor at the ordinary meetings, on writing the name in a book provided for that purpose, or sending a written order.

COMMUNICATIONS.

Papers proposed to be read at the meetings may treat of any subject connected with the Art, Science, or History of Music, Acoustics, and other kindred subjects.

Papers will be received from or through any member of the Association.

Experiments and performances may be introduced, when limited to the illustration of the Paper read.

All communications read will become thenceforth the property of the Association (unless there shall have been some previous arrangements to the contrary), and the Council may publish the same in any way and at any time they may think proper.

REPORTS.

A Report of the Proceedings of the Association, including the Papers read or abstracts of the same, and abstracts of the Discussions, shall be printed and distributed to the members as soon as possible after the end of each session.

This Report will be arranged and edited by the Honorary Secretary, under the direction of the Council.

COUNCIL AND OFFICERS.

The management of the affairs of the Association shall be vested in a Council, to be elected by ballot at the general meeting of the members on the last Tuesday in October.

The Council shall consist of a President, Vice-Presidents, and ten ordinary members of the Association.

The Honorary Secretary of the Association shall be *ex officio* an ordinary member of Council.

The President, Vice-Presidents, Auditors, and five ordinary members of the Council shall retire every year, but shall be eligible for re-election.

At the annual general meeting in October, the Council shall present a balloting list, showing the names of the persons whom they propose for the offices of President, Vice-Presidents, and ordinary members of Council for the ensuing year. A copy of this list shall be given to each member present.

In voting, each member may erase any name or names from the balloting list, and may substitute the name or names of any other person or persons whom he considers eligible for each respective office; but the number of names on the list, after such erasure or substitution, must not exceed the number to be elected to the respective offices as above enumerated. Those lists which do not accord with these directions shall be rejected.

The Chairman of the meeting shall cause the balloting papers to be collected, and after they have been examined by himself and two scrutineers, to be appointed by the members, he shall report to the meeting the result of such examination, and shall then destroy the balloting papers. Auditors shall be appointed at the annual general meeting by the members, and the statement of accounts shall be sent by the Treasurer to the Auditors, and be remitted by them to the Secretary in time to enable the Council to judge of the prospects of the Association, and to prepare their report in accordance therewith.

The Council and officers shall meet as often as the business of the Association may require, and at every meeting three members of Council shall constitute a quorum.

**ENACTMENT OR ALTERATION OF RULES
AND REGULATIONS.**

No rules and regulations can be enacted, altered, or rescinded, except at a special meeting of members summoned for the express purpose, the summons stating distinctly and fully the matter to be brought under consideration.

MUSICAL ASSOCIATION.

FOR THE INVESTIGATION AND DISCUSSION OF SUBJECTS
CONNECTED WITH THE ART AND SCIENCE OF MUSIC.

FOUNDED MAY 29, 1874.

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MUSICAL ASSOCIATION.

SIXTEENTH SESSION, 1889-90.

REPORT.

THE Annual General Meeting of the Musical Association was held at the Royal Academy of Music, on Tuesday, October 28, 1890:

MAJOR CRAWFORD in the Chair.

The following REPORT of the Council was read by the Secretary:—

The Council of the Musical Association have the pleasure to present to the Members the Annual Report for the Sixteenth Session. The papers which have been contributed respectively by the Rev. W. J. Habens, Sir John Stainer, Mr. Frederic Penna, the Rev. Henry Cart, Mr. Frederic Niecks, Mr. G. A. Audsley, Mr. Somers Clarke, and Mr. F. St. John Lacy, will, it is hoped, be found as interesting and valuable as any that have preceded them. With their several Discussions they have been printed in the Annual Proceedings of the Association, and a copy sent to every Member as usual.

The attendance, often very small, at the Monthly Meetings has for some time past engaged the attention of the Council, and it was thought desirable to ascertain the general feeling among the Members as to whether it would be advantageous to make some change in the day and hour of Meeting. A Circular with this object was therefore issued in November, 1889, placing before the Members a suggestion which had been made, that the Second Tuesday of the month, at 8 o'clock, would be probably more convenient than the existing arrangements. As the great majority of the answers received approved of this suggestion, the Council called a Special General Meeting on June 2, 1890, to consider the matter, and it was then resolved to alter the Rules so as to carry this into effect.

In connection with this point the Council are pleased to announce that by permission of the Committee of Management and of the Principal of the Royal Academy of Music, the meetings of the Association will in future be held in the Concert Room of that Institution.

The Council trust that these new arrangements will not only have the effect of enabling Members to attend the

Meetings more regularly, and thus to take part in the Discussions, but will also induce many professional and amateur musicians who have hitherto held aloof on account of the inconvenience to them of the former arrangements, now to join the Association and to take an active part in "The Investigation and Discussion of Subjects connected with the Art, Science, and History of Music." It is hoped, therefore, that Members will take every opportunity of bringing the Association and its work under the notice of those who do not belong to it. Nomination Forms and copies of the new Prospectus, which includes a List of Members, and a complete table of contents of each of the sixteen annual volumes, may be had on application to the Assistant Secretary.

The Balance Sheet, duly audited, is presented herewith for your inspection. The Council regret that they have not only been unable to reduce the amount owing to the Hon. Treasurer on last year's accounts, but that it has been considerably increased. The outstanding subscriptions are more than sufficient to cover this deficit, but the Council is very desirous that this disfigurement of the Annual Balance Sheet should be removed, and they therefore appeal to Members to assist their efforts in this direction, by paying their subscriptions regularly and as early in the financial year as possible. Members may be reminded that subscriptions are due in advance on the 1st November in each year, and the practice of forwarding them late in the following October is productive both of inconvenience and increased expense.

Arrangements for the coming Session are in progress, and the several papers which have been offered seem to promise that the reputation of the Association will be fully maintained.

The President, Vice-Presidents, the Hon. Treasurer, the Hon. Secretary, the Hon. Auditors, and five ordinary Members of Council—Mr. Banister, Major Crawford, Mr. Praeger, Mr. Sergison, and Mr. Stephens—retire from office. The Council recommend Mr. Stephens for election as a Vice-President, and as Mr. Praeger has resigned his membership there are thus two vacancies among the ordinary Members of Council. The names of Mr. Myles B. Foster and Mr. Ridley Prentice are submitted for election to fill these vacancies; with these exceptions all the other retiring officers are recommended for re-election. Members have, however, the right of nominating, if they so choose, any others for office.

THE MUSICAL ASSOCIATION.

Hon. Treasurer's Statement of Receipts and Disbursements from October, 1889, to October, 1890.

Dr.	£ s. d.	£ s. d.
To 103 Subscriptions for 1889-90	... ...	... ...
" 8 " 1888-89	... ...	... ...
" 3 " 1887-88	... ...	... ...
" 1 " 1886-87	... ...	... ...
" Sale of Copies of Proceedings	... ...	... ...
" Dividend on £350	... ...	... ...
" Balance due to the Treasurer	... ...	... ...
	£164 16 10	
By Balance due to the Treasurer on last account	... ...	... ...
" Novello & Co—Printing, &c.	... ...	... ...
" C. F. Thorn—Petty Printing	... ...	... ...
" Wright & Gabell—Reporting	... ...	... ...
" G. Shaw—Hire of Rooms	... ...	... ...
" Salary of Assistant Secretary	... ...	... ...
" Petty Cash	... ...	... ...
" Various Petty Accounts	... ...	... ...
	£164 16 10	
Subscriptions outstanding:—	£ s. d.	£ s. d.
2—1887 ...	... ...	... ...
6—1888 ...	... ...	... ...
12—1889 ...	... ...	... ...
30—1890 ...	... ...	... ...
Part subscription, 1887 ...	... ...	... ...
	£553 3 0	
<i>Examined, audited, and found correct, 24th October, 1890,</i>		
W. S. COLLARD, } <i>Auditors.</i>		
D. J. BLAKEY, } <i>Hon. Treasurer.</i>		
ALFRED H. LITTLETON,		

NOVEMBER 11, 1890.

SIR JOHN STAINER, M.A., Mus. Doc.,
PRESIDENT OF THE ASSOCIATION,
IN THE CHAIR.

MUSIC IN THE ROYAL NAVY. AN APPEAL!

By ARTHUR HAVERGAL, Lieut. R.N.

It was with great diffidence that I undertook, at the request of the President of this Association, to write this paper.

I felt, in the first place, that there are many of my brother officers who could have done it much better, and, in the second, that as a very humble amateur, I should be addressing a distinguished body of musicians. I trust, however, they will patiently hear me, as I am actuated by none but sincere and patriotic motives.

The subject of this paper is not a comprehensive one, nor is it an easy matter to make it attractive. The navy can boast of very many great things, but the development and progress of music is not, I fear, one of them. This paper, therefore, partakes rather of the nature of an appeal than any contribution to the history of music.

Music in the navy, like that on shore, is divided into two classes, sacred and secular. Some sailors like devoting their leisure to one, and some to the other, or both combined. I will now give a brief account of how music is generally carried out in the naval service, dealing with the sacred portion first.

Sacred music on board ship, the same as on shore, was at one time considered as something which belonged especially to those connected with the church, and not quite consistent with every-day life; but that idea, I am glad to say, is gradually disappearing, and we have now on board the training ships a proper authorised system of instruction in that class of music. Formerly the chaplain, assisted by the naval schoolmaster, did what he could towards establishing a choir, without any recognition on the part of the Government; now, however, the Admiralty assist and encourage the practice of sacred music on board the training ships. Choir practices are held weekly on board these ships. Each

chorister receives a small sum from the Government, according to the number of times he has attended. Hymns and chants are, as a rule, only practised. The Tonic Sol-fa notation is used, books and music being supplied by the Government. The boys are reported to read music well by this method. As many of them enter the training ships from the Board School—"Board School" to "board ship," you observe—they are not altogether novices. The choirmaster is generally a schoolmaster (who instructs boys in the academical part of their profession only), holding the rank of chief petty officer. Besides teaching the choir he plays the harmonium at service, for which he receives the sum of £5 a year in addition to his pay.

Now, with regard to the instruction of secular music on board the training ships, like the sacred branch of the art it is entirely voluntary; but by way of encouragement the Admiralty allow a certain amount of money for distribution amongst the boys, according to the number of times they have attended the classes. Singing classes are held on two evenings during the week. Besides this, the whole of one "watch," that is, a division of boys, sing nautical and other songs for about a quarter-of-an-hour in the morning twice a week. The song-book used is a compilation by G. Bishop, a late bandmaster in a training ship. The Tonic Sol-fa system is used, instruction books and music being supplied by Government. The singing master must hold a teacher's certificate from the Tonic Sol-fa College. He receives, in addition to his pay, £10 per annum. He may also combine the duties of choirmaster. Mr. James Evans, of the London School Board, has been appointed by the Admiralty to visit the training ships annually and report on the progress made. I believe his reports are of a very satisfactory nature, material advancement having been made since 1885, when the Government took the matter up. The number of boys attending the singing classes on board the training ship *St. Vincent*, at Portsmouth, is about sixty.

When a boy passes out of a training to a sea-going ship his musical instruction ceases, but he can continue his studies in this respect or not as he pleases. It must be confessed, however, that the circumstances by which he is surrounded are not encouraging. He lives with the rest of the ship's company on the lower deck, which is like a large submarine room, fitted up with mess tables, stools, racks for crockery, mess kettles, and other paraphernalia. He is surrounded by his messmates and shipmates, many of whom, like their compatriots on shore, not unnaturally object to the practice of scales and exercises. But bluejackets as a rule are not too thin-skinned, and beyond perhaps making a remark replete with the humorous metaphor peculiarly their

own, no other protest would be made. All sacred musical matters on board a sea-going ship are purely voluntary, which of course is not the case with all secular music, as in a large ship a band is appointed by the Admiralty and paid to do little else except perform.

The first thing generally done to aid the performance of sacred music on board a ship fitting out is to start a subscription for a harmonium, or "salvation box," as I have heard bluejackets call it, for use during Divine Service. Then comes the formation of the choir. In ships where a chaplain is borne, this is of course done under his supervision, with the assistance of the naval schoolmaster. Then comes the choir practice, which generally takes place in the evening, after the work of the ship is over. The situation selected for the purpose is as far removed as possible from sight and hearing. The fore store-room, a place in the bows well below the water-line, which has never seen daylight since the ship was built, and where the smell of pitch, tar, paint, and canvas, &c., "assault the nose below the bridge," as Hood humorously sings of quite another kind of bridge, is often the favourite place for choir practice. Here perhaps a dozen hands, and sometimes a few officers, assemble to try over the hymns and chants selected for the following Sunday, and become familiar with them so as to lead the congregation.

Things have somewhat improved of late years though. As an illustration of this, I cannot do better than give you some account of the choir of the *Alexandra*, the Duke of Edinburgh's flagship on the Mediterranean station between 1886 and 1889. I am indebted to my dear and very old friend, Bishop Corfe, who was then her chaplain, for the particulars, and also to his persevering and energetic choirmaster, Mr. Henry Leese, who has supplied me with many details.

The *Alexandra* was commissioned in 1886. At first only half-a-dozen hands assembled for choir practice. Two only of these had any previous knowledge of music. At the end of three months, however, the numbers had risen to twelve. They were able to sing the Canticles, Psalms, Responses, and Bennett's Evening Service in F. The progress continued both in numbers and efficiency. In fact, the singing was so well taught and the choir so well managed that it became popular. Bluejackets became anxious to join. It was necessary to select only those who were capable. It must be remembered that all the above music was taught by ear, and ear alone. But after the ship had been a year in commission, Tonic Sol-fa classes were formed and good progress made; so much so, that on the following Good Friday parts of Sir John Stainer's "Crucifixion" were performed. An Evening and a Communion Service, written specially by Bishop Corfe, were also learnt; and Christmas

Carols were sung at special services on the following Christmas Day. The secular music on board the same ship was quite as successful as the sacred. Four part-songs were at first taught by ear alone, each part being hammered out separately, and then welded and beaten together in harmony; truly a marvellous example of patience and perseverance on the part of Mr. Henry Leese, and also his pupils. A tuning-fork was the only instrument used. This invested the choir with an interest which would not have been the case had it confined its practices to sacred music alone.

On board the *Challenger*, during her scientific cruise round the world, we had many, both officers and men, who took an interest in musical matters. Although we had no chaplain, our church services were fairly creditable. We also got up some part-songs. We had a volunteer brass band of about twelve. The men composing it had no previous knowledge of music. They were taught by a man who was rated on the ship's books as a "musician," a man who is supposed to stand on the capstan and fiddle a tune to the men "to heave round" to. This man was certainly an instructor, if he was not a musician in the highest sense of the word. During the last part of the commission, we had a captain who was very musical, and played the cello well. He also brought a piano with him, which was of great assistance to us. Then we had several scientific and literary gentlemen on board. So with all this combined talent, we had many amusing and instructive evening entertainments during the many days when our scenery consisted of a waste of waters, and our evening post the arrival of the trawl or dredge bringing news from the "vasty deep." I may mention that being at sea for weeks and weeks together, out of sight of land, is equivalent to putting everybody's failings under a powerful microscope. It is, therefore, just as well to provide something to lessen its power.

Let me give you a brief description of a Sunday on board a man-of-war. "The hands," that is all the bluejackets, are "turned up" at about 5.30 a.m. All the upper decks and batteries are then cleaned. Breakfast is piped at 6.30. Then the remaining portion of the ship is cleaned; the guns are polished like mirrors; all metal work burnished like the precious metals. If in harbour, everything aloft is made neat and tidy. At 8 a.m. the colours are hoisted, and the band on the poop plays the "National Anthem." At 9.30, all being ready for inspection, the bugler is ordered to sound "the Assembly." The officers and bluejackets fall in "at Divisions," generally in rear of the guns, in their "Sunday best." The latter are inspected by their officers. The captain then inspects everybody and everything in the ship, the band playing in the after-part of

the ship during the whole of this parade. After which the bugler sounds "the Disperse," and the boatswain's mates pipe "Rig Church" on the main deck, or battery, or any other suitable place. In hot weather the upper deck is often used. Stools are got up from the mess deck ; capstan bars are transposed into seats by placing the end on a couple of buckets, &c. ; chairs are got from the wardroom for the officers ; the pulpit and harmonium hoisted up from the depths below ; the bell is then tolled ; officers and men come aft to church ; the choir sit round the harmonium. The chaplain then appears, robed, and proceeds with the usual form of Morning Prayer, with sermon and Holy Communion. The canticles and hymns, and in cases of good choirs like the *Alexandra*'s the responses, are sung with much heartiness, especially when well-known and popular music is selected. Of course the introduction of music must not make the service too long, for it must be over and the church "unrigged" by noon, when they "pipe" dinner for the blue-jackets. This is a parade service, and everybody belonging to the Church of England has to attend. At 5 p.m. a voluntary service is often held in some convenient place. As this service is purely voluntary, the numbers which attend it are a good test of the amount of interest taken in church matters on board. And it is one of the reasons why I am here before you to-night advocating the cause of music in the navy, that it does make men take an interest in church matters on board ship, which is above all things to be desired. As an illustration of this : In the *Alexandra*, in consequence of the care and pains taken in the musical portion of the service, the attendance of men increased something like twenty-five per cent. towards the end of the commission.

Then as to secular music. Ships of a certain size are allowed a properly trained band. Bandsmen, as a rule, receive their instruction on board the training ships, as I explained before. They are there taught two instruments, wind and string. After they have passed out of the training ships, they are employed as bandsmen only in sea-going ships. The duties of a band are to play in the evening, and sometimes during any heavy work, such as hoisting in boats, &c. Besides this, when the ship is in harbour, it plays at 8 a.m., when the colours are hoisted, not only our own, but also all the foreign National Anthems of those nations whose men-of-war happen to be present. So you may hear half-a-dozen different National Anthems consecutively.

At this time also the men are generally cleaning guns and arms. So the band continues to play some lively and inspiring pieces, to render the work less irksome, I suppose.

I do not know what the origin of the band playing at this time was, but it has been said that in the action between our frigate the *Java* and the American frigate *Constitution*, that the former was captured because the men refused to fire the shot which had cost them so much trouble to polish. What authority there is for this story I don't know, but one can easily imagine something of the kind might have led to the introduction of some cheerful music during the performance of this duty.

But the voluntary secular music takes place after the work of the ship and drills are over. The bluejackets like to congregate on the forecastle in the peace of the evening, and indulge in a *clay-pipe* and perhaps a *hornpipe* and songs besides "yarning and working." They bring whatever instruments they may be the happy possessors of to play solos or improvise accompaniments. The concertina, banjo, guitar, piccolo, and sometimes a fiddle are the general favourites.

In the ship I recently commanded in the West Indies, we had one gentleman of colour, who used of an evening to bring his guitar on deck to discourse some music, which he was determined should be sweet, as he carried his instrument in one hand, and in the other hand a piece of sugar-cane wherewith to refresh himself between his pieces.

This musical recreation on the forecastle would appear to be a very old institution. Everyone who has read Marryatt's "*Snarleyow*" will recall his amusing description of that fine man (all but his legs) "*Jimmy Ducks*" and his fiddle; there are other instances which might also be given. What the style of music in those days was is not quite so clear. If they got their songs from men like Shield, Dibdin, and Arne, &c., they did better than we do now-a-days. They had, however, a class of song which was to a certain extent amusing, but rather wearisome. They called it "*a fore-bitter*" (the name is derived from the "*fore-bitts*," which are stout wooden posts secured to the deck on the forecastle for making fast ropes to, and where these songs were usually sung). It consisted of an endless number of verses, narrating some action, or gallant exploit, sung to any tune you like in a kind of rolling vibrato style. No doubt it served its purpose, and stimulated bravery and patriotism. But it was not music. We do not attempt this sort of thing now. There is so little music suited to our requirements that the bluejacket falls back on the latest ditty from the music hall, or a morbid and sentimental melody from nigger minstrelsy.

I will now venture to give you my opinion of what I consider generally the style of music suited to the requirements of the Royal Navy, parenthetically remarking that the relations between that service and the Mercantile Marine are

becoming so close that whatever style of music is adopted by the former, the latter are sure to follow suit.

As regards church music. If we can assure to sacred music on board ship the same position as that held by secular music—and there is no reason why it should not be so—we are pretty sure of getting encouragement and assistance from the Government. In support of which I may remark it was in consequence of the interest taken in their work by the choir of the *Alexandra* that a request was made to the Admiralty for a supply of music, which was granted without question. Everybody knows how valuable precedent is in Government affairs. Pecuniary allowances for instruments and secular music are now made to certain ships. The same allowance might be made for sacred purposes. As to sacred compositions, so far as I am aware, with one exception, no sacred music has ever been written specially for the navy, the exception being the service of Bishop Corfe. The reason for this is difficult to assign, but whoever undertakes to do so would certainly confer a great benefit on sailors generally. In doing so, he would have to consider amongst other things the following points: That the music must be for congregational and unison use, as everyone wishes to join in, and it makes bluejackets take an interest in it when they find they can do so with ease. Progressions should be as simple as possible. As an illustration of the funny fancies bluejackets have occasionally in singing hymn-tunes, I take hymn, No. 185, Ancient and Modern, set to that beautiful tune of Sir J. Stainer's, "St. Paul's," third line and last bar: although the progression would seem to be perfectly simple and natural, I never could get men to sing from the penultimate G to the F#. I don't know why, but they always wanted to go to A. Compass should also be most carefully considered. "For men's voices without altos," is the ingenious title of Bishop Corfe's service, which conveys at once what is required in this respect. One of the chief difficulties, however, is to impress the bluejacket with the sense of the words he is singing—at present he sings for singing's sake. After a good deal of thought and experience on this subject, I have come to the conclusion that the harmony and not the melody should be altered. For instance, in the Te Deum, altering the chant at the sixteenth verse puts everybody out, but if the harmony be altered to suit the solemn nature of the words, the end is effected, and the bluejackets begin to realize that they are singing words of a different meaning. I found Dr. Hopkins' chants, with additional harmonies, very useful. But this collection consists of single chants only. We want double chants treated in a similar manner. Of

course as time and education advance, if somebody will only be kind enough to write us some good and suitable services, these compositions, no doubt, would soon become popular. Jackson's *Te Deum* in F, sung right through in unison, was, if it is not now, the bluejackets' *beau ideal* of a service. Further comment is unnecessary.

As regards hymns and hymn-tunes, we ought to have a book of our own. *Hymns Ancient and Modern* are at present supplied (words only) by the Admiralty, but the majority of its tunes are unsuitable.

A selection might well be made and published in a separate book, the same as has been done from the "Hymnary" for the army. Additional harmonies to some of the tunes would be of great value. Or hymn-tunes worked up in anthem form, in a similar manner to the way in which Sir A. Sullivan has treated "St. Ann's." Bluejackets have a hankering after what I believe Sir J. Stainer characterised as the "debased floriated style," such as "Rockingham," for instance. It would be as well not to encourage this taste.

It must be remembered that the means of accompaniment during Divine service is generally only an American organ or harmonium, but in large ships a band might be available. A well trained choir could be made to strengthen either of these means.

As regards secular music, a certain amount has been written, but only a small portion of it has become at all popular. The reason being, I venture to think, that the composers did not bear in mind that a sea song is not necessarily a song for sailors. As an extreme illustration of this take Shield's "Saucy Arethusa," or "The heaving of the lead"; they are magnificent sea songs, but quite beyond the average sailor. The consequence is that Jack goes ashore and picks up what he can at the nearest music-hall or theatre. More recently song-books and compilations by Sir J. Hullah, Mr. Hatton, Mr. Purday, and others, have been published, but they do not seem to have quite hit the right nail on the head. What is wanted is a good melodious song, well within the compass of an ordinary male voice, with, perhaps, a chorus at the end of each verse, and an accompaniment for guitar, banjo, concertina, &c. This would suit the forecastle well. But at the same time, well-trained choirs like that of the *Alexandra* would welcome part-songs for men's voices. So thoroughly have we changed our ships and methods of handling them, that there is a fine opening for a modern Dibdin. His muse would have to sing of steam and armour-plates, instead of sails and wooden walls; batteries, turrets, and flats, instead of gun-decks and cockpits. Guns fired by electricity, machine guns, "pumping lead," and fish

torpedoes in place of the good old cannon fired with a slow match by the light of a tallow candle, commonly called "a purser's dip" in the navy. Not quite so romantic, I admit ; but he can console himself by thinking that future generations will consider our greatest scientific achievements as romantic as we do those of our ancestors. Or he might turn his attention to the more peaceful pursuits of the navy, and tell how we advanced our scientific knowledge by the discovery of Globigerina, Diatoms, Crinoids, and other wonders of the great deep brought to light, in the most literal sense of the word, by means of the dredge, trawl, and "the heaving of the lead."

As regards secular instrumental music. There is on board vessels of a certain class a band of a dozen instruments or so, wind and string ; men, as I said before, being taught to play both. Music written or arranged for it would always be acceptable. It sometimes happens that where the instruments can be privately obtained, a voluntary band is established, as in the *Challenger's* case. I have already stated that the instruments which find most favour with blue-jackets, and with which he passes his leisure time and evenings, are the guitar, banjo, concertina, and the like. Now, I admit these are not inviting instruments to write for, either separately or in combination. But we had an illustration before this Association not long ago of what can be done for the guitar, in a Fugue written by the late Sir F. Ouseley, and dedicated to Sir J. Stainer. And I remember the Blagrove Family used to do wonders with the concertina, as does Signor Alsepti now. Any musician, therefore, really interested in the matter, and wishing to find relief from the more serious work of his pen, could not do better than turn his attention to writing a few trifles for the amusement and improvement of the defenders of his hearth and home.

It is quite unnecessary for me here to expatiate upon the virtues of good music ; everybody knows its refining and elevating influence. The term of reproach—effeminacy—once applied to it is now, happily, a thing of the past, so nobody need be afraid of rendering his country less secure by providing the navy with good music.

Sailors, as you know, have a language peculiarly their own. It has been handed down for centuries past. They often understand that form of speech better than any other. For instance, we speak of the "foc'sle" on board ship, when a landsman says "forecastle." We sailors talk of "boxing a compass," a landsman thinks of the same with reference to a naughty boy's ears, and so on. This is the way in which music should speak to a sailor ; it should be *nautical* music, in fact, and be inculcated in their early youth on board the training ships. I am sure that Sir John Stainer

(whose influence and opinion will always command the greatest attention and respect, and who I must thank very much for presiding to-night, perhaps at some personal inconvenience) will help us to introduce good music into these naval nurseries, and so extend it throughout the service; and perhaps Messrs. Novello, who have always been to the fore in aiding a good musical cause, will assist us in publishing it.

I have now endeavoured to sketch out the kind of music required for the Royal Navy, and I thank you for listening so patiently to me whilst I did. If I have succeeded in awakening any interest or desire on the part of any musician to make the subject of naval music a study of his leisure hours, this paper will not have been written in vain.

Since writing this paper, I see Messrs. Novello have published in their Vocal Albums some songs by Arne and Dibdin. Some of these will, doubtless, be welcomed by the navy.

DISCUSSION.

THE CHAIRMAN.—Mr. Havergal began by saying that he was not a fit person to read a paper of this kind. Having known him for a good many years, I beg to say that he is, on the contrary, peculiarly well fitted for such a task. We are all familiar with his name; we know that he comes from a family of church dignitaries, who will always be remembered on account of their valuable contributions to church music, while he himself is a distinguished officer who was sent out on the *Challenger*, where, we know, every man was picked. It is certain that sailors are very fond of music. It is equally true that we have a very fine literature of sailors' music in our old song-books, and I am bound to say that some of them are very charming, the words being often of considerable literary merit, while some of the tunes, although requiring an enormous vocal compass, are very beautiful. Of course Lieut. Havergal has pointed out their fault. It did not occur to me before that so many of the terms were absolutely obsolete, and, consequently, had little significance to the ears of the modern tar. It is certain that none of our modern ballad writers have any very clear conception of the style of diction suited to Jack. It seems to me, from the few pseudo sea-songs I have come across, that the only idea the ballad writer of the present time has of a sailor is that he is for ever pulling a rope, and saying "Yo, ho! heave ho!" I positively taboo any song

which contains the words "Yo, ho! heave ho!" The allusion to sacred music was not quite clear to me. You say, Mr. Havergal, that the Government do not supply harmoniums?

Mr. HAVERGAL.—No.

Sir J. STAINER.—But they do supply brass instruments?

Mr. HAVERGAL.—Yes, for secular music, or, strictly speaking, a pecuniary allowance is made for the maintenance of the band.

Sir J. STAINER.—That seems to me a great anomaly in the system, and I feel sure that if a number of officers, following Mr. Havergal's example, were to interest themselves in the matter, public opinion would very soon be brought to bear upon the State. With regard to Jackson in F being so popular amongst sailors, you must not be surprised at that. Some two or three years ago, I was in one of our well-known music shops, and was speaking about that "once used" service, Jackson in F. "Once used!" said the clerk; "why, sir, last month we sold three thousand copies." So that, even ashore, it still seems to be a favourite. As regards the foliated tunes, of course I do condemn a good many of them; but I do not think that I ever condemned "Rockingham." It seems to me that no place could have been more suitable to ventilate a subject of this kind than the Musical Association, and I do hope that some of the composers present to-night will, if ever they have a leisure hour, devote it to the wants of the navy, a body of men who have inherited such a magnificent record for heroism and bravery, and who are, really, the greatest contributors to our peace and comfort at home; for, if we were not satisfied that we could depend upon our navy, we should be the most unhappy nation in the world. On these grounds, therefore, they may fairly claim a little consideration at the hands of our modern composers. Sailors, apparently, must have a very limited compass. The music, I take it, may be written in two or three parts. And as to the words, Mr. Havergal?

Mr. HAVERGAL.—Yes, in two or three parts. The best collection of words is probably the book compiled by Dr. J. Hullah, and published by Macmillan, I think.

Rev. M. E. BROWNE.—I should like to ask Mr. Havergal whether the concertina, as played on board ship, is the same instrument as that played by the Blagrove family, or whether it is the instrument of torture we often hear at our doors? I should also like to ask: Have hand-bells ever been thought of for the amusement and improvement of sailors in a musical direction? I should think they would afford a most interesting evening's entertainment. They were distinctly useful in that way in one of the villages I visited. A third question I should like to prefer is: Whether there are not

some of those "fore-bitters" (I think that was the name) which are still retained traditionally, either of tunes or words? Some ten years ago I remember being in a sailing ship bound for Australia, and there certainly were traces of some such thing among the sailors. Each man sang what came into his head, but they all seemed to know the tune. I remember there was a particular one, which accompanied a ceremony that took place during the voyage. It was called "The burying of the dead horse," and had something to do with the first day on which wages became due. There was an effigy made of a horse, which was beset by one of the men, and the passengers had to subscribe for the price of the horse, and at night it was solemnly buried, by being dropped from the end of the main yard, accompanied by a seemingly interminable chorus. Verse after verse was sung as a solo, and at the end of each "bit" came the following lines: A certain voice: "They say, old man, your horse will die," and then there was a general chorus, "And we say so; and we say so!" The third line improved on the old idea. "They say it, poor old man"!!!

Mr. HAVERGAL.—With regard to the first question, I believe they are the same. As to hand-bells, I don't recollect having heard of their being used at all. Referring to the "fore-bitter," the one you describe would almost seem to do as well. There is one kind of "fore-bitter," which I think is very much in vogue in the Merchant Service. I think it is called "Shanties," or some such name. It is, however, totally distinct from the old man-of-warman "fore-bitter." The one I made allusion to was essentially one belonging to the Royal Navy at that time. I don't think I know of any published "fore-bitter," either in words or tune. There may, possibly, be something approaching it, but it is almost impossible to write any music of that kind.

The CHAIRMAN.—I will now proceed to ask you to pass a sincere vote of thanks to Lieut. Havergal for his most interesting paper. It is evident that while we are all pretty familiar with the outside of a ship, we know little of its interior, and of a sailor's life.

The vote of thanks was passed unanimously.

Mr. HAVERGAL.—It is a great pleasure to me to have been able to read the paper to you, and I thank you all very much for the kind and patient manner in which you have received it.

NOVEMBER 11, 1890.

SIR JOHN STAINER, M.A., Mus. Doc.,
PRESIDENT OF THE ASSOCIATION,
IN THE CHAIR.

*ON A PAIR OF ANCIENT EGYPTIAN DOUBLE-
FLUTES.*

By T. L. SOUTHGATE.

IN the spring of the present year I received a letter from Mr. Flinders Petrie, who was then in Egypt, telling me of a great find he had come across while excavating in the Fayoum. The letter was partly in answer to one I had written him, begging him to look out for any traces of a musical notation that might possibly have been employed by the ancient Egyptians. I was then engaged in a study of the rise and history of the notation of music. I thought that in Egypt—the mother of civilisation, that wonderful land which has done so much in the way of discovery and development of the arts and sciences—it was quite possible that the art of writing down sounds sung by the voice, or given forth by instruments of music, might have originated; and that the Greeks might have borrowed the idea, as they borrowed and adopted so much, so very many of the arts and customs of this most ancient people. Mr. Flinders Petrie told me that as yet a method of music notation had never been looked for, but that he would keep his eyes open, and should not be surprised, now that its possibility had been suggested, if some such system were to be found in the papyri dealing with religious services, or on the wall-paintings of tombs, where distinguished musicians were buried. And he went on to say he had found in the coffin of a mummy, buried more than 3,000 years ago, a case containing a pair of double-flutes, still in perfect condition, despite the ages and ages that had elapsed since they were buried with their long dead owner. He told me one of these pipes possessed four finger holes, the other three, and he gave me the dimensions of the tubes; roughly each are about eighteen inches long and three-sixteenths of an inch diameter, and he furnished me with the distance of the holes from one another. The singularly small size of the bore surprised me, and I opined that Mr. Petrie had erred in these measurements, for I felt that such slender tubes as these would not have spoken as flutes. The importance of the discovery was very great from a musical point of view; indeed, its significance can hardly be overrated, for I saw that these pipes

would most likely supply what had been a matter of speculation for ages past, and is still a mystery—viz., the notes or exact sounds of the old Egyptian scale. I will not detain you by recounting the many guesses by historians and investigators as to how this ladder of sounds was built up, and what was the musical system the Egyptians employed. It is enough to state that it has been generally assumed to resemble the mode now in use in Egypt, a country where very little change occurs; and where they employ a system of quarter tones, third of a tone, and such minute intervals as are used by the Arabs, Persians, Hindoos, and other Eastern people, a system we, with our Western trained ears, cannot appreciate, and which we somewhat hastily (I venture to think) conclude can be nothing more than a fortuitous collection of intervals, possibly fit for a melodic purpose, but one impossible to deal with, so far as harmonic combinations are concerned. The late Carl Engel, in his valuable work "The Music of the most Ancient Nations," argued with much ingenuity that the Egyptians, in common with the Assyrians and the Hebrews, used the Pentatonic scale—



that is to say, our modern diatonic scale less the fourth and the seventh. In this scale there are no semitones, and of course no chromatic intervals are employed. Some few writers have hazarded a guess that Pythagoras obtained the idea of his so-called tetrachordal system from the Egyptians, and thus the music of the Greeks came from an African source. Remembering all this, I was naturally anxious to see these precious flutes so wonderfully preserved, and impatiently waited for the time when Mr. Petrie would bring the results of his excavation labours to London. I do not propose to speak to you on the music of the ancient Egyptians. The subject is a fascinating one, but I must not stay to describe their various instruments of the string, wind, and percussion types—there are as many as seventeen different kinds of these known to have been employed; nor will I dilate on their music itself, or on their performances. Those who have given any attention, or studied all this, cannot but feel that the music of the Egyptians must have been of a higher and more complete kind than that which obtained among the Greeks, even in their palmiest days. The Greek writers indulge in much hyperbole as to the wonderful effects of their music; the papyri of the Egyptians are silent in this respect. But better than such descriptions, fanciful or real, the Egyptian artists made use of their brushes to such good effect, that in the frescoes which adorn their sumptuous tombs we have pictured for our instruction the

daily life of this people, their arts and customs, as they existed two, three, four, and five thousand years ago. These monuments speak a language that cannot be misunderstood: together with their papyri they tell us enough to perceive that a high degree of civilisation and culture existed on the banks of the Nile, when the inhabitants of this island were—well, probably cannibals. So far as music is concerned, we have plenty of evidence proving that the ancient Egyptians were highly susceptible to the art. They employed it to increase the mysteries of their religious worship, to endow their warriors with courage, to minister to the delights of their social entertainments, to enhance the rhythmical effects of their dances, and to please the people in their ceremonies, festivities, official celebrations, and public processions.

I am aware that before Mr. Petrie's discovery some few Egyptian flutes and portions of others of different kinds have been found; there are some such at Turin, Paris, Leyden, Berlin, Florence, and in our own British Museum. But so far as my knowledge goes, they are isolated and incomplete examples; and scattered in various museums are portions of many other old Egyptian instruments. Interesting, deeply interesting, as are these relics of music, so far as the music they once gave forth is concerned they tell us very little. The strings that once sounded, and the notes they played, are alike vanished; even such representations as we possess of instruments of the lute tribe, with fretted finger-boards, cannot help us; we know not how the strings were tuned, nor can we be sure that the painters depicted the frets in their proper and just positions. With a pipe that is intact, and still playable, we are in possession of evidence which cannot be gainsaid. Nature's laws of acoustics are the same to-day as of yore; all we have to do is to find out the way the instrument was blown, and we must obtain precisely the same result as the Egyptians got three thousand or more years ago. There may remain some doubts as to the use of harmonic intervals, as to the pitch of reeds employed, or as to what clever performers could do by partially covering the finger holes; but apart from these considerations, the main scalar features of wind instruments still perfect can be determined without difficulty.

Mr. Flinders Petrie brought his collection over to England in September last, and it was on show at 6, Oxford Mansions, until a fortnight ago. I must not touch on this most interesting exhibition. Some of its objects took us back to the dim stone age, for there was a sickle shown made from the jaw-bone of a camel, the teeth taken out and sharpened flints set in their places, constituting a reaping hook of immense antiquity. A papyrus of the time of Abraham was quite late compared to this. And below this, as it was hung on the wall, was an incubator used by this wonderful people

to hatch eggs artificially in much the same way as the last patented contrivance fulfils the same office with us. A large table in the back room contained on it the objects of such great interest to musicians. On this was deposited the spoils from the tomb of the Lady Maket : the chair on which she sat, her wooden head-rest, looking-glass, and paint-pots (for the face I mean); her combs, earrings, bracelets, necklets, rings, with her name engraved on them; scarab charms, beads for her fancy work, and a dozen other things that need not be mentioned. All these were taken out of the lady's coffin by Mr. Petrie himself: and, most precious of all to us musicians, a case of some umbelliferous plant containing the pair of double-flutes which are now before you. The burial of this lady took place in a rock-cut sepulchre at Kahun, a town built for the use of the workmen employed to construct the pyramid of Usertesen II., a monarch of the twelfth dynasty, who reigned some 4,300 years ago. Mr. Petrie is of opinion that about 1100 B.C. the tomb was rifled, and again used by some new-comers in search of a sepulchre for their family. From that period—about the time that Saul reigned in Israel—until this present year, the tomb had remained undisturbed. The chief person buried there was a lady whose name was engraved on a gold scarab and on a small silver one set in a ring. Thanks to the kindness of Mr. H. Martyn Kennard, who now owns this ancient seal, I can show you an impression taken from it.

The inscription runs:—



Neb-t pin Mak-t.

"Lady of the house Mak."

It is thought that the Lady Maket may have been of Phœnician extraction, no doubt she was a person of some rank; it is sufficient for us to know that she must have been a musician, and so her beloved flutes were buried with her for use in the spirit world, according to the custom of her people. Had these slender pipes been placed loosely among the other articles in the coffin, the probability is they would long ago have fallen to pieces; but fortunately for us, they were carefully enclosed in the hollow case used by the lady in her lifetime, and so they have been preserved, and are yet playable.

I had expected to find pipes about the diameter of our concert flutes, and thought that the measurements Mr. Petrie had sent me from Egypt must be wrong. I believed what he had found were specimens of the long flute, held obliquely and sounded by being blown across the top, in just the same way as the modern "Nay" is played in Egypt. The name of this was the "Sébi," the Greeks calling it πλαγιανδος, the Romans *Tibia obliqua*. There are many drawings of

persons playing on this long side flute, and as the instruments vary in length, even in the same drawing, it must be certain to musicians that they were of different pitches, and so took their several respective parts in the great scale of sounds.* Small as was the diameter of these tiny flutes Mr. Petrie had found, he considered that, like the larger and longer ones, they spoke by lip blowing only ; and I inclined to the same belief. But Mr. D. J. Blaikley, who joined us in the examination, was of opinion that the tubes were of far too small a bore to be sounded in this way, and that some form of reed must have been used with them. Mr. Petrie gave us, together with Mr. Hermann Smith, minute measurements, and from these *fac-similes* of the ancient pipes have been made. Mr. Blaikley constructed some of brass tube, agreeing in thickness with the slight walls of the reeds, and I made similar specimens in brass, cane, and paper. These being identical in their various measurements must of course give identical results ; material does not affect the pitch or intervals, and indeed has but little to do with tone quality. Although by lip blowing the notes given by unclosing the various finger-holes can be distinctly heard, I found it impossible to make the pipes speak properly in this way, and some flute players to whom I applied, and who tried their skill, were equally unsuccessful. Still, I did not despair. Many persons cannot make an ordinary flute speak ; very, very few can obtain notes from the Nay ; and I know that in India a flute of a similar kind—viz., a simple hollow tube—is still employed, and is most difficult to play. Then there is the nose-flute of the Polynesians and Feejee Islanders ; and further, there are open tubes played by the natives in Guinea and Brazil, but probably these are of a large bore. I suspect none of us would readily succeed in playing any of these. All such instruments require skill and practice to sound them. But despite much perseverance and consideration, I was unable to evoke any respectable sound from my copies of Lady Maket's instruments. I found that M. Loret, a French investigator, had also failed to get similar slender pipes to speak, and fell back on the reed of the oboe. I tried a flageolet whistle head, after the manner employed for very small organ pipes, but without success. I then turned attention to reeds, and, of course, found the tubes spoke readily with all sorts of reeds, whether beating, of the clarinet type, or double as the kind used in the oboe, or of the arghool form as are those employed for the drones of the bagpipes, excellent specimens of which were sent me by Mr. D. Glen, from Edinburgh. Best of all, were reeds cut from the stalks of wheat straw, one end being closed by a plug of wax, and a short vibrating tongue cut lengthways with a sharp

* There is one such in the museum at Florence, measuring 2 ft. 4 in. in length, and possessing five finger-holes (Subsequently described).

knife. The only difficulty was to pack these air-tight into the orifices of the tubes, for if this was not done properly the notes were uncertain and harmonics resulted. I was strengthened in the impression that reeds of this kind were used by finding amongst the Egyptian collection at the British Museum some fragments of pipes of a similar nature to the complete ones Mr. Petrie discovered; and with one of these was found a long wisp of oaten straw. It is probable that this was carried by the players to make fresh reeds as required for their flutes. I find that portions of similar Egyptian pipes are in the museums at Florence, Turin, Leyden, Berlin, and the Louvre. Most of these seem to have had three or four finger holes; some have their embouchures protected by waxed thread, or narrow bands of papyrus wound round. In the Leyden museum is a case which enclosed some fragments of pipes, together with three short stalks of straw. In the Turin collection is a flute with six holes, having a diameter of four millimetres only, and with this was found some straw; a short length is still stuck in the embouchure. More than this is hardly required to tell us how these old flutes were blown; but I came across a most valuable piece of evidence on turning over the pages of that magnificent work of Rosellini's, "I Monumenti dell Egitto." Plate ninety gives a representation—almost life-size—of a lady playing the double-flutes, accompanied by some others, clapping their hands to the dancing of two Nubian girls. You can see the original fresco in the British Museum; here is a copy of the flute player from it.



The pipes are blown exactly like those we have here to-night; about an inch before the inverted A-shape tubes enter the mouth, the brown pigment with which they are painted stops, and the rest of the tubes are white. Evidently this represents the two short straw reeds with which they were supplied, and furnishes a certain proof of how they were played.

The fresco comes from the famous Beni Hassan tombs; though dating from the periods of the eighteenth-nineteenth dynasty (1700—1400 B.C.) it is in good preservation and the colours of the painting are still distinct. The figure I show you forms one of a group of musicians engaged at a gentleman's house in connection with a festival in honour of the god Ptah. A number of guests, men and women, are seated on chairs, while women-servants are handing wine to them, female musicians sitting on the ground play to them, and women dance before them. Many of the guests hold a lotus flower, and one man a handkerchief, as a mark of refinement. In addition to the double-flute player, there are three girls marking the rhythm of the dance by clapping their hands; unfortunately the end of the fresco is wanting, so we cannot tell what instruments the other musicians in this little band were playing. In the middle of the fresco is an inscription in hieroglyphics, the commencement of which is wanting. Mr. H. W. Mengedoht has kindly translated this for me, and it runs:—

“ . . . odour Ptah, Seb hath made his glories to grow from every matrix, Ptah hath done this with his hands for the pleasure of his heart, the canals are full of water, the earth is renewed bathing in his love.”

The god Ptah is frequently mentioned in the Hymn to the Nile, Seb personifies the earth from which everything proceeds.

You will notice that in playing the hands are crossed, the right hand dealing with the pipe on the left side of the performer, and the left hand with the pipe on the right. This peculiarity is found in several other instances of the frescoes in the Egyptian tombs.

It is just possible that the straw stem employed by the players may have been flattened by splitting the top of it, the two sides then forming a sort of double-reed of the oboe type; but I have not succeeded in getting such straws to speak. I must not stay to recount the history of the double-pipes, or to quote from the classical authors what has been written about these favourite instruments of music; nor will I speculate on the music they played, or the part they took in the Egyptian orchestra. Pollux mentions them in his “*Onomasticon*.” In Gianelli's “*Dizionario della Musica*,” under “*Flauto*,” will be found a most interesting extract

from Manusio, describing the double-flutes and how they were played. The Egyptians called them "Mâm," the Greeks termed them *Διαυλος*, and they were supposed to have come from Phœnicia and under the name "Gringroi" been used in playing the "Song of Linus"; the Latins called them *Tibia pares* when the pipes were of equal length, *impares* when one was longer than the other. The main interest these old pipes have for us is the exact sounds they produce. You shall see a table of the results of my experiments, giving the notes obtained—(1) By lip-blowing; (2), by using a tiny straw reed; and (3), by testing with a bagpipe small tenor reed. I have also set down the actual vibrations the notes yield, together with the vibrations of the corresponding notes according to the Philharmonic standard. You will afterwards hear the pipes, but we shall do little more than sound them after their long slumber; what they can do you will hear on the *fac-similes*, and I must ask your indulgence for Mr. J. Finn. Not only are they difficult to play, but we have not found out all the peculiarities of the reeds employed, which are sometimes uncertain, and go off, as reeds will.

But first I will show you some copies of Egyptian wall paintings, in which the right or direct flute (played as we blow the flageolet or clarinet), the open long oblique flutes, and the slender double-flutes are severally depicted. Those interested in the music of the ancient Egyptians will find further illustration of their instruments in Lepsius' great work "Denkmaler aus Ægypten," in Sir Gardner Wilkinson's valuable "The Manners and Customs of the Ancient Egyptians," and in Champollion's "Egypte." Then you will hear (if my reeds are obedient) Lady Maket's flutes, that have been silent for some 3,000 years; and afterwards Mr. Finn—to whom, as well as to Mr. Blaikley, I am indebted for much valuable help in investigating this interesting subject—will play on the *fac-simile* specimens we have, so that you can form some idea of what these instruments could do. Let me say that Mr. Carruthers, the chief of the Botanical department at South Kensington, has examined these flutes with great care, and pronounces them to be made of the water reed, "Arundo Donax," still growing near Cairo, and from which plant, under the name *Sativa*, we obtain the materials for our oboe and bassoon reeds. Thanks to Mr. Ware, of Tottenham, I can show you some stalks of this plant he cut and sent me.

I will not anticipate any discussion which may arise as to the scalar system these flutes and the specimens of the long oblique flutes reveal, further than by calling your attention to the fact that the scale employed is not the Eastern one of divisions of thirds and quarter tones, a method alien to our system; neither is it the pentatonic, for it

contains a perfect fourth to its fundamental sound. If I may say so much, it would seem that it includes the basis of our present system; and when you hear what I have to say on the short shepherds' arghool double-flute, or rather chalumeau, an exact specimen of which will be played to you, you will perceive that the Egyptians possessed both a diatonic and a chromatic system, and you will probably form an opinion that our Western musical system came from the Egyptians, with whom Pythagoras stayed, studying their arts, customs, and history for some eighteen years. It would seem that all the Greek philosopher did was to classify and hand on the system of the Egyptians, which was current a thousand years before he was born; he did not evolve a new one as his countryman pretended, and as many historians have too readily accepted.

Mr. Southgate here showed eight large outline drawings copied from frescoes in some of the Egyptian tombs. They represented girls playing the double-flute, and bands composed of performers playing on various stringed, wind, and instruments of percussion. The following are selected for representation here. A side view of a girl sitting on the ground playing the double-flutes, from a tomb at Thebes; much of this fresco has fallen away:—



The next two examples are borrowed from illustrations to Stainer's "The Music of the Bible." This shows a player

on the double-flutes of the *tibia impares* kind ; one tube is longer than the other.



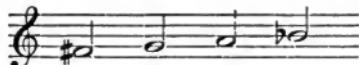
This represents a small band, consisting of three men sitting and clapping their hands, three girls standing and performing the same rhythmic office for the double-flute player, who is executing a dance as well.



Mr. Southgate then sounded the original pair of double-pipes.

The notes heard by lip blowing across the tops are, for the three-hole—

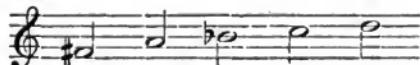
Corresponding to * B C D of the annexed plan.



The F sharp is the fundamental note of both the tubes.

On the four-hole—

Corresponding to * B C D E



Here is a reduced plan of the long double-pipe, the tubes being given separately; and underneath is the parallel "Zummárah"—to give it its modern name—together with its arghool reed. *A* represents the respective embouchures, the letters following are placed over the finger or vent holes.



Fig. I.—The

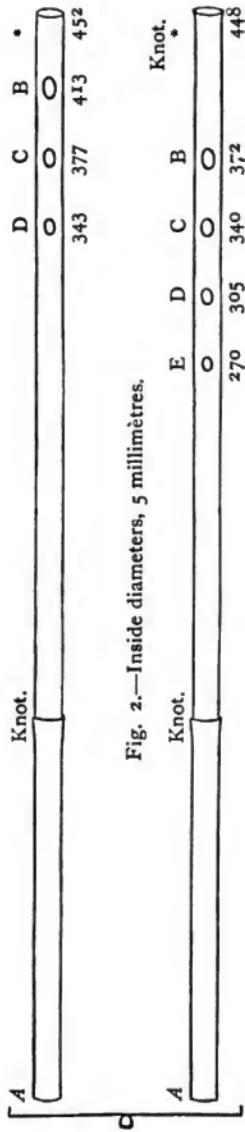


Fig. 2.—Inside diameters, 5 millimetres.

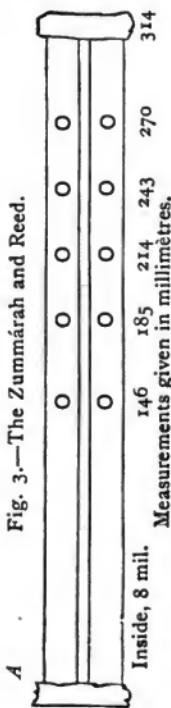


Fig. 3.—The Zummarah and Reed.

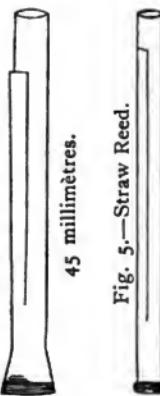


Fig. 4.—(Reed.)



Fig. 5.—Straw Reed.

It will be observed that one tube is a little longer than the other ; this is probably intended in order to compensate for the flattening effect of the knot which occurs just at the end of the shorter tube, thus contracting it. The measurements given show the distances of the various finger holes from the embouchures. The holes are elliptical, beautifully shaped, they range in length from six to three millimètres, and they gradually decrease in size for the higher intervals. The reed employed to sound them is given in Fig. 5, full size ; it is of the chalumeau or clarinet type—viz., a single beating reed, the end of the straw being closed with wax. Of course it obeyed the acoustic law, sending the true notes of the pipe down an octave lower and about one tone farther, to agree with the additional length the short piece of straw added to the tube. The notes now heard were for the three-hole—

Corresponding to * B C D

The four-hole gave—

Corresponding to * B C D E

On employing a large bagpipe (arghool) reed, two-and-a-half inches long, the vibrating tongue being one inch, and which reed, away from the tube, sounded middle C, the pitch in both cases was carried down a minor third lower for all the notes. Small musette and oboe (double) reeds were tried, but the results were not reliable : the holes, when uncovered by the fingers, often gave harmonics. The fact was, the reeds were too strong for the slender column of air to control, and so the reeds had the mastery, and did not synchronise with the mathematical length of air in vibration. Something of a similar nature occurs even with the little straw reed, for it will be observed that the first interval of the three-hole pipe by lip blowing is a semitone, whereas with the reed it is a tone ; and again with the four-hole, it is respectively a minor third as against a major third.

It will be perceived that the notes set down are the notes of our scale, though they do not proceed in the same order as we employ.

The following table will show how very nearly these notes approach the corrected intervals of our modern tempered scale—a scale, be it remembered, intended for harmonic, and not merely melodic purposes, and consequently not mathematically true. The first column gives the notes produced with the reeds the second the actual vibrations of the notes,

the third the Philharmonic scale, and the fourth (for comparison) the mean pitch of three of the modern bagpipe scales, all carefully noted by Mr. D. J. Blaikley:—

† E flat	160	160	160
* E flat	160	160	
* F	177	179	178
* G	197	201	196
† G	194	201	
* A flat	215	213	213
† A flat	213	213	
† B flat	233	239	231
† C flat	257	254	256

The notes on the three-hole tube are marked*; those on the four-hole †.

It may, perhaps, be assumed that the notes given above form an incomplete and truncated scale, but this is not so. The pipes and reeds are ruled by the same acoustic law which governs the production of the harmonic notes in our clarinet. Consequently it is quite easy, by varying the pressure of wind, to obtain their respective fifths (not the twelfths as is customary) and octaves. That being so, the complete series of sounds is as follows:—

The diagram illustrates a series of notes on two staves. The top staff, associated with 'Octaves.', shows a sequence of notes: a note with a stem and a dash, followed by a note with a stem and a circle, then a note with a stem and a dash, and finally a note with a stem and a circle. Above this, under 'Harmonics.', are several notes with stems and circles. The bottom staff, also associated with 'Octaves.', shows a similar sequence of notes: a note with a stem and a dash, followed by a note with a stem and a circle, then a note with a stem and a dash, and finally a note with a stem and a circle. This pattern repeats across both staves.

Such is the series of notes readily obtainable from these pipes. Here is the Greek tetrachord, and something more; moreover, Mr. Finn, by varying the wind pressure, obtains from the three-hole pipe the complete diatonic scale of C. But over and beyond these notes, practised players can obtain other intervals by manipulating the vibrating reed with the tongue or lips, and by partially closing the finger-holes, and the Egyptians could have done just the same.

The question as to how the pipes were played is a speculative one. Both may have been sounded together, one forming a sort of drone bass; or two parts may possibly have been played, though this is not likely: or the reed of the one desired to be silenced may have been pressed against the side of the mouth, thereby stopping its vibrations and speech; or the player might have temporarily removed one pipe from the mouth, or drawn it forward to the lips, so as to stop the reed vibrating. In all probability the music played was slow, so that a practised player had time to make such alterations in the disposition of his pipes as were

required. The holes were, no doubt, stopped by the second joints of the fingers, not the first, as we now employ, and to make the notes it was not required to uncover all the holes, so that the hands kept a good command over the tubes.

As small specimens of music that could be rendered on the double-flutes, Mr. J. Finn played on the three-holed tube the following "Song of the Water Carriers," an ancient melody still in use in Upper Egypt :—

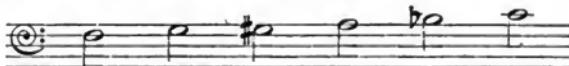


And on the four-hole tube the "Song of Linus," a melody of immense antiquity. It is mentioned by some of the earliest of the Greek classic writers as being played on the "gringroi"; it is occasionally still used as a dirge at funerals :—

It is of course uncertain whether these are the very notes used. As the notes of the pipes readily yield their fifths and octaves, in all probability these higher sounds were those selected for use by the ancient players. I have here a specimen of the Egyptian Nay, on which Mr. Finn will sound the notes by blowing across the edge and partly down the tube. It is the descendant of the ancient oblique flute, merely a hollow tube; no doubt it is the parent of our modern flute, the difference being that we stop up one end with a cork and blow through a small hole at the side.

As to the short pair of double-pipes fastened parallel together, I need detain you a few minutes only. Inasmuch as they are played with a beating reed, they belong to the old chalumeau or shepherd's pipe tribe of instruments. The example in the case here was found by Mr. Flinders Petrie in the Coptic cemetery at Gurob, in the Fayoum Province, and he assigns to it the date of 600 A.D. It should be remembered that this was before the conquest of the country by the Persians, and so the old tonality must still have obtained; after the conquerors had settled down, they impressed their arts and customs on the Egyptians, and from that time the Arab music, with its strange tonality and differently placed intervals, must have gradually supplanted the ancient system of the country. Even if the date assigned be later than the fifth century, the intervals obtained from this double-pipe cannot be of the Arab type. You will hear that

they consist of a series of six notes differing but little from our corresponding intervals:—



It is of special interest to know that in company with the double-pipe, Mr. Petrie also found one of the reeds, so we know just how this instrument was played. I have placed a piece of paper under the tongue in the glass case here, so that it may be more plainly seen; so elastic is it that it will still vibrate, but the pipes themselves will never sound more, they are hopelessly cracked. However, I have made a *fac-simile* from two short pieces of bamboo, and with a couple of reeds of the same character inserted, Mr. Finn will let you hear the tone of the instrument. Of course, we cannot tell if both pipes spoke identical notes, the holes being in the same position would lead one to suppose so; but if the tongues of the reeds employed or their tubes were of different lengths, the performer could play in thirds or sixths, or, indeed, in independent parts. Most likely they went together with a wave or quivering between the two tubes. I should observe that this trembling is the custom, and considered to be delightful among most Eastern nations; and so Egypt, from which so much good has come, is also the originator of that blemish of singers—chiefly of French and Italian origin—the detestable *tremolo*.

Mr. Finn will play to you on this shepherd's double-pipe an ancient piece of music still played at weddings among the Copts, the descendants of the ancient Egyptians:—

WEDDING MUSIC.

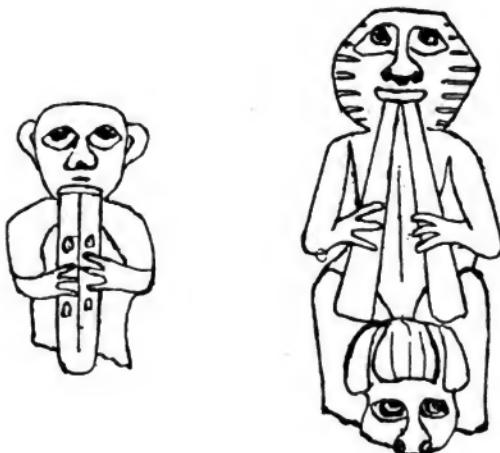


Fig. 3 shows this double-flute, and Fig. 4 its reed full size.

I cannot show you any drawings of players performing on this species of double-flutes, but Mr. Petrie and Mr. Hilton Price have been good enough to lend for exhibition four small figures showing a boy, the god Priapus, a woman, and a monkey playing the instrument. When I tell you that one of these is assigned to 2500 B.C., you will then be able to

form some idea of the immense age of the double-pipe; and remember, that before some genius thought of fastening two together, a single pipe must have existed for ages and ages previously.

Two of these have been selected for illustration here. One is a figure of a boy playing the double-pipes, it is covered with a beautiful dark blue glaze; this was found at Kahun, and is of the date 2500 B.C. The other is a grotesque figure of a monkey playing the pipes with the head of the god Nefertun between his knees; this comes from Memphis, and is about 800 B.C.



A form of this double-pipe—the Zammar—is still played commonly in Egypt and Syria; only in some cases the second tube (so to speak) has ceased to utter melody, and has been turned into a sort of drone bass; it is furnished with various lengths of tube in order to adapt its drone to the note required.

I should point out that the bagpipe is a pipe—I had almost said, musical instrument—of this description. It is still popular in certain parts both at home and abroad. We once had an ancient instrument of this nature, the “Pibcorn,” about which and its congeners an interesting paper appeared in the November issue of the *Anthropological Journal*.

Let me remind you that the double-flageolet was used in the present century. I possess one by Bainbridge, in excellent order, and had it not been on show at the Military Exhibition I should have brought it for your inspection, as the last descendant of the very ancient Egyptian double-pipe, and some music should have been played to you on it.

Only, perhaps, after hearing all these double-flutes, ancient and modern (*fac-similes*), it is quite possible you might then have been tempted to repeat the sarcastic observation of old Cherubini, who, when asked, "What can be worse than a (*une*) flute?" contemptuously replied, "Two (*deux*)."

DISCUSSION.

On showing the drawings Mr. Southgate said: (1.) This is a drawing of the *Tibia recta*, the Greek *Μοναυλος*, and is a figure taken from a fresco at Thebes. (2.) This is a drawing of the long oblique flute, the Sébi. These flutes were played by being blown across the top by the lips. They are difficult to play in that way; one of them is in the museum at Florence, and there is one at the Louvre. (3.) That is the instrument, a specimen of which I believe we have here tonight, the old double-flute. It is taken from a rather large fresco, consisting of five women playing, some the harp, some double-pipes, while others are clapping their hands.

Sir J. STAINER.—Those pipes are not joined, are they?

Mr. SOUTHGATE.—No; they are two separate pipes, but are held in that inverted A-shaped position by the lips of the player.

Sir J. STAINER.—I can't understand why they should be called double-pipes if they are separate instruments.

Mr. SOUTHGATE.—They consisted of two independent tubes, but were played together. (4.) This represents a lady dancing, and also playing the pipes. (5.) This, I take it, is a priestess, also playing the double-pipes.

Dr. J. F. BRIDGE.—Surely some of the pipes at the Exhibition were joined?

Mr. SOUTHGATE.—Not of this kind, but of the shepherd's pipe type. (6.) This is from a very large fresco, and a most interesting one. Three girls are sitting together. One is playing the double-pipes, while the others are clapping hands. Others, again, are dancing. The subject is evidently descriptive of an entertainment being given at some nobleman's house. Nine guests, ladies and gentlemen, are sitting at a table with lotus flowers in vases, eating, drinking, and enjoying themselves. The drawing is curious from the fact that the hands of the player are crossed in such a way as to lead one to believe that the right hand is playing the left pipe, and the other the right pipe; this can hardly have been so.

The CHAIRMAN.—Unless it is meant to be a perspective. The intention may have been to depict the one flute a little in advance of the other.

Mr. SOUTHGATE.—(7.) This is a priest offering incense. Here we get a harpist; one performer is playing a long oblique flute, while another is playing on one still longer. (8.) Here is a performer with the lute, and another with a sistrum, and an ancient drum, now at Berlin.

Dr. A. C. MACKENZIE.—Were the notes sounded those given in the bass clef according to your table?

Mr. SOUTHGATE.—Yes; of course the pitch of the tube was altered by the length of the reed and its tongue; it became practically a "stopped" pipe.

Mr. STEPHENS.—I don't quite follow your table of notes; before the insertion of the reed, one of the intervals was a semitone, while now it is a whole tone.

Dr. MACKENZIE.—Why should the third be altered in the reed pipe?

Mr. SOUTHGATE.—The answer is this. The column of air is so very small, having regard to the bore of the tube, that the reed is the chief controlling power; you must get a reed to be exactly in sympathy with the pipe, otherwise the absolute notes given out are uncertain. I should tell you that when the flutes were discovered, they were of rich orange colour. It is, however, customary to cover articles of wood found in the tombs with wax, in order to preserve them; hence their black appearance. I am sorry to say that this one had a little piece broken off at the end when Mr. Petrie exhibited it; it was actually done by the Curator of some museum! I have joined it together with shellac varnish, and it seems to go all right. Just observe how very beautifully and daintily these holes are made; so excellently graduated. I was talking to a flute-player about them, and his opinion was that the flutes must be forgeries, since he believed that graduating the size of the holes was only an invention of the present century!

The CHAIRMAN.—Is there any painting in which such very small flutes are shown?

Mr. SOUTHGATE.—There are many wall paintings in the Egyptian tombs, in which they are depicted, and they are often found represented on vases, gems, and in other ways.

Mr. CUMMINGS.—"Flute" is a generic term with the Egyptians. There is a particular way in which they were placed, according to the special ceremony that was being observed. If they were turned to the right, they meant one thing, and if to the left, another. There were many kinds. This slender double-flute is only one sort.

Dr. MACKENZIE.—I take it that the first lines of the tables show the notes produced without the reed.

Mr. SOUTHGATE.—Yes, by blowing across the top only.

Mr. BLAIKLEY.—As I had an opportunity of seeing these Egyptian flutes with Mr. Southgate at Mr. Petrie's

exhibition, I may, perhaps, say one or two words from a careful examination of them. In the first place, there was some difficulty in making true *fac-similes*, owing to not having the originals for a sufficiently long time in hand to take accurate measurements, and the fear of injuring such fragile objects. The reeds vary in diameter, according to their natural growth, and in copying them I endeavoured to be as exact as possible under the circumstances. There may be a difference between the copies and the originals, though it is very slight. Although the reeds were taken in their rude, natural condition of irregular growth, we must not judge therefrom that the tuning was haphazard. Some persons I have spoken to on the subject were under the impression that the players of these pipes simply cut a few holes at random, and that, consequently, the tuning was haphazard. I don't think that this is the fact; I think the tuning was regulated. A question arose in my mind, when I first saw the pipes, and I put it to Mr. Petrie, whether they were not mere toys, or models, or something of that kind. He assured me that he had not the slightest reason to think so. According to his view, they were evidently articles that had been in actual use, and would be good of their kind at that period, as, in all probability, they were the personal possessions of the lady with whom they were buried.

Mr. SOUTHGATE.—May I interrupt by stating that Mr. Petrie called attention to the fact that the holes were worn.

Mr. BLAIKLEY.—Then as to the method in which these flutes were played. Some are of opinion that this was done by blowing across the end, as with Pandean pipes; you may just hear the notes, when they are so obtained, but the sound is a mere murmur. Therefore, in my opinion, a reed of some kind must have been used, and the next point for solution is the kind of reed: it seems to me that a reed of the arghool type was most probably used. If we take a very light reed, it adapts itself to the length of the tube; that is to say, if you sound it first with a tube of a certain length, and then add a further length of tubing, the difference in pitch of the instrument, pipe and reed combined, will be the difference due simply to the added length of tubing. I tested that point very carefully, because everything in this enquiry depends upon it. If we use a stiff reed, we get any pitch we like, according to the reed; but if we use a very light and small reed, we can be tolerably sure that the notes we are getting are the notes due to the length of the tube as determined by the different finger holes. I first took a reed with a certain length of tubing, and then added a sufficient length to flatten the pitch a twelfth, and found that the flattening was exactly that due to the added tube. That result would apply to the tubes as varied in length by

the holes in the same way. Of course there will be little differences, according to the actual length of the reed, and to the extent it projects from the tube; but such a difference of pitch would influence the relative pitches very slightly indeed. Then with regard to the extremely small bore of these pipes, it might be mentioned that at the Military Exhibition, in the Loan Department, there was a racquette shown, seven inches long, with nine holes bored through a mass of ivory, and the bore of that racquette was very little more than that of the pipes under discussion. It was an instrument blown with a double reed, and sounded the low C of the bassoon, with a pipe something less than a quarter of an inch in diameter. With regard to the notes produced from my copies of the "flutes," as sounded with a small straw reed, I will write down a few figures:—

Harmonic Scale.		Egyptian "Flutes."		Highland Bagpipe Chanter.
Notes.	Vibrations.	With 3 Holes.	With 4 Holes.	Mean of 3 Observations.
9	Ratio 3 to 4. Perfect fourth.	160	160	160
10		177·8	177	178·8
11		195·5	197	196·3
12 5	Ratio 5 to 6. Minor third.	213·3	215	213
13		231·1	...	233
6	Ratio 5 to 6. Minor third.	256·0	...	257

* This last interval is a minor tone ratio, 9 to 10.

The note produced from the full length of each "flute" is E \flat  and the note speaking from the highest hole E \flat  of the three-holed instrument is A \flat , a perfect fourth above this, the fourth being divided into three unequal tones, exactly in the same way as this interval is divided in the harmonic scale from the ninth to the twelfth notes. These are the natural notes of the horn or trumpet, from the high D to G. On the four-holed flute the second of these notes is missing, and the two higher holes give respectively a note corresponding to No. 13 on the harmonic scale, and a note a minor tone higher than this, or a minor third, ratio five to six, higher than the highest on the three-holed flute. The lowest and the highest notes of the two flutes therefore give the chord of A \flat minor, which

may here be noted on the "moveable do" system, as well as with the vibrational values:—

E \flat	A \flat	C \flat
160	213·3	256
mi	la	do

These three notes can, therefore, be written accurately in our notation; for the other notes our notation is only approximately correct, just as it is for the higher natural notes of the horn and trumpet.

The close correspondence of the scale of the three-holed flute with a portion of the bagpipe scale as reduced to the same pitch, is certainly worthy of observation in connection with the view that the bagpipe has possibly come to us from an Eastern source.

Hearty votes of thanks were passed to Mr. Flinders Petrie for the loan of the flutes, as also to Mr. Southgate for his paper, and to Mr. Blaikley for his valuable assistance in the matter.

DECEMBER 9, 1890.

H. C. BANISTER, Esq.,
IN THE CHAIR.

FURTHER THOUGHTS ABOUT SINGING.

BY FREDERIC PENNA.

Expression.

IN continuing the subject upon which I had the honour of addressing the Musical Association last January, I should like, first, very briefly to call to your remembrance one topic upon which I then spoke, for, in the present paper, I shall have much occasion to refer to it. I allude to the important requisite that as vocal music is a union between poetry and "harmonised melody," the most careful attention should be given that, in the combination, the various points demanding accent in the one should be responded to with perfect sympathy in the other. This, for the intelligent singer's sake, who is responsible for the perfection of the outcome. I stated to what notes in the diatonic scale, as well as dissonant notes generally, the accented words and syllables should be set. By the detailed observations I made, I implied, if I did not lay it down as a proposition, that singing was musical oratory, requiring that the delivery of the words should be rich in eloquence and in thorough accord with the sentiment of the music. Further thoughts with respect to this branch of the musical art, which I desire to place before you, will have a passing reference to the elocution of singing—the simple delivery of words; and then, and chiefly, to *expression*, musical and verbal; the full meaning of which I shall endeavour to show according to the view I take of the comprehension of the word. In the remarks I shall have occasion to make, if I may reckon upon your patience, will be seen the several reasons of my dwelling so much upon it. You will pardon my using very simple language, and giving a few rules well known to all thoughtful musicians who have made this branch a special study, that this paper may present some show of completeness. I shall have to make more than simple reference to *translated* songs, to *transposed* songs, and to what occasioned much argument and difference of opinion some few years since—*musical pitch*.

There is a fanciful conception in the minds of some persons that music is a language thoroughly understandable *without any aid*, not only for the purpose of conveying impressions left upon the heart and mind of the composer by means of the senses, its legitimate function, but also for that of communicating thoughts other than musical-ideas, without any words. This, it seems to me, is out of the range of its power. For, as it does not directly present abstract or concrete ideas, not being the ordinary language of communication, it cannot be an appeal to the *understanding*, like a proposition in Euclid. When a listener finds any such ideas presented to his mind, I may submit it is not through the phrases, the melody, or the harmonic combinations, but solely through the associations conjured up. The province of the understanding, in its relation to abstract music, is limited to an observance of the formulated rules of art and the wisdom of their recognition, that no violence be done to *Truth*, so far as we have become acquainted with it in this connection.

Its only real appeal is to the *feelings*, by means of the imagination, and its influences, in a greater or less degree, proportionally to our innate music-appreciation. The musician, like the true poet, expresses himself and his feelings in his work. He is the painter, in a great measure, of his own portrait. Who is without an insight of the characters of Shakespeare and Burns that has much read their works—or of the divine Mozart—or of him who wrote his works, “to the glory of God,” Joseph Haydn? And this is true, not only in the writing of abstract music—which is the outcome of a pure genius—but in the writing of dramatic or character music. However successfully he makes dramatic music suit the individual he is portraying, the composer is never able to hide himself behind his work. Those critics who have carefully analysed the music of “*Elijah*” cannot but be sensible how admirably every feature of the prophet’s moral, but substantial character is depicted, so far as music can express the *immaterial* part of man’s nature. But the characteristics of Mendelssohn superadd themselves to what the composer has put down as the expression of the character painted. By these we know the author.

Now, for this *transference of feeling*—the realising of the sentiment of another—what is, or should be the procedure? Assume the character of *Elijah*, or any other equally distinct and well marked! What the interpreter has to do first, is to study to become the *possessor*, and then the *exponent* of the varied feelings of dignity, satire, sorrow, and the subtleties of the *rôle* he assumes. To these he has to add the idiosyncracies or mental developments of the *composer*, who had previously identified himself with these qualities and

feelings, for the purpose of their better realisation; and the more close the resemblance between the musician portraying and the character portrayed, the more perfect the musical picture. Hence, it follows, if the interpreter be like the character he is assuming, and also the composer, the more correct and natural the expression. For I incline strongly to the opinion that two persons with precisely similar characteristics, their musical ability being equal in every respect, would similarly express any one feeling or emotion; just as I have found (and probably others have found the same) that two persons, physically resembling each other, are usually like each other in tone of voice, manner, and disposition, though not in any way related to each other, the moral and the physical conforming with perfect regularity to certain inflexible laws in their relation to each other.

If music be *thus* a product of *disposition* and *feeling*, I may assume that the religious sentiments so well expressed in the works of Mendelssohn and other writers, great in this respect, were first conceived, and fully realised, before being entered upon in musical detail. This I believe to be the only way that the perfections aimed for can be arrived at.

Before attempting the appreciation of the *musical* sentiments, or the expression of the *words* of a really great song, the *main* sentiment (not musical) should be first realised and felt by the singer. Then the words, as words, should receive his attention. To this end a familiarity with the rules which good elocution teaches is necessary. This might be supposed to be the common possession of all persons sufficiently well educated to become solo singers. But practically and to the needful extent it is not so. First, then, I think, we should hold it to be important that a singer of oratorio music, if he wish his art-work to come within the definition of musical oratory, should be an able elocutionist. Good orators are elocutionists, and the best actors are elocutionists, or claim to be so, for Shakespeare's sake; and should not good singers be equally so? The question needs not to be put; but, in this, there must be "the art that conceals art," or it will show but pedantry, which will defeat its purpose. And to this power they should have added such a knowledge of music as will enable them to read the meanings of the compositions they render in their complete state, including something of the apparent intention of the composer in the orchestration.

After this, must come the true *expression* of the *musical* and *verbal* sentiments. As to the first, all good singers have, or should have, some general principles of musical expression, and not deliver their notes without observing some approved rules of art. Every phrase in a good composition, I will assume, has a meaning, and this should be thought out and delivered accordingly. The mere tuneful rendering of a

phrase is by no means adequate to the need. The amount of tone given to each note, apart from its colour, should be made to depend upon its position in the phrase and the relation it bears to other notes. Notes should be made to touch each other by a direct vocal pulsation, and evenly joined together, whatever the distance between them. In an ascending passage, *as a rule*, there should be an increase of tone; but in a descending passage, as a rule, the reverse should take place, the breath should be held back. Especially is this holding back of the breath needful, when there is a leap downwards—say, the descent of a fourth, fifth, sixth, or seventh—otherwise with the same pressure, the tone would be too loud and somewhat harsh. As an example occurring to my mind—and one example is as good as twenty—in the fourth bar in the Aria “It is enough,” the word “life” in the passage, “O Lord, now take away my life,” is sung on two notes, the upper D and the G sharp below, the dominant third and seventh of A. Now, without this retention of breath, a very coarse tone would be produced on the G#. I have heard it again and again.

Phrases as to their amount of tone should be made to depend upon other phrases in their connection. If they are corresponding phrases, the detailed manner of rendering one ought to mark the rest, with more or less intensity, according as they may be aiming for a climax or a declension. This will assume that the crescendos and diminuendos are being observed, or the climaxes will be missed.

Now as to dissonant notes and resolutions: the latter, flowing out of the former, should be entirely free from accent, the dissonant notes themselves, including appoggiaturas, which retard the sounds the ear is waiting for, bearing all the accents. The ear is able to rest *only on Conords*, and then on certain conditions being observed; it is chiefly because of the anticipated resolutions that discords are beautiful, and when, as is constantly the case, discordant notes resolve on further discords, there is a postponement of the tranquillity which the concord brings. In some of the more modern of the music of the day, which some persons distinguish as the music of the future, the ear needs to have much patience before it gets the looked-for satisfaction, and this, when obtained, is often far too brief to allow of repose. The ear is very willing, but, according to a certain well-known fable, it may be tried too much.

But such modern music, beautiful as it may be to an attentive listener in a concert-room, is not well-adapted for *all places*. Purely diatonic harmony music, being free from these disturbances, is naturally better fitted for the solemn service of the Church in which singing, reverent and devout, passionless if you will—should, if precedent can establish

anything, form so real and so important a part. For the proper vocal expression of such harmony contributes greatly to—not diverts from—the religion of devotion; keeping the heart and mind tranquil and free for holy contemplation. But, on the other hand, sensuous, chromatic, very modern music, rendered according to its true character for emphasis and accent, *expresses* but the religion of *emotion*, affecting too much the feelings by its exciting influence, and is therefore only rightly fitted for the stage or platform.

It is the sublimity of "Tallis" that accounts for its having held for upwards of three centuries its lofty and unrivalled position in the music of the Anglican Church; while in the Romish Ritual, for an equally lengthened period, the true language of religious worship is to be found in the solemn and majestic inspirations of the great Palestrina. The dust of oblivion can never lie upon, or impair the beauty of this music, nor can the changes of time lessen its sublimity. Not only the appreciative *ear*, but the *soul* finds repose when this music is rightly and solemnly expressed in the services of the Sanctuary. At the time of the poet Pope, such music as the last fifty years has witnessed did not exist, so he must have had a vision of what *would be*, when he sang—"Discord is harmony not understood." I have never known how to translate that line, if it meant anything at all. However, letting all this pass, which may *seem* a digression from my argument, I do most seriously think that if what I have advanced as to accentuation respecting music, *apart from words*, were more attended to, and singers generally rather more musicianly in their *expression*, it would be greatly to the advantage of this branch of the art.

As to *colour* of vocal tone; it should be made to correspond with the general character of the melody sung. This may be dignified, pathetic, solemn, sublime; in sympathy with the *main sentiment* of the text. Every *verbal* phrase, every word, in fact, in this text should be rendered with the thoughtful care to which in study it had been subjected, the meaning and the relative and absolute importance of every word having been duly weighed. Without this, perfect *verbal* expression can never be secured. Were this always done by the singer, and I may venture to say by the composer also, the too prevailing method of closing modern ordinary songs through the thirteenth of the dominant, would soon cease, or differently accented poetry would have to be set; for, as it is, the thirteenth, a note that always makes itself felt, and requires strong accent, is commonly set to an insignificant *preposition*. This sort of art-work is simply pandering to the uneducated and unartistic taste of the general public, whose knowledge of this great art of ours is too often

confined within the strict boundaries of a *high note*. For expression's sake avoid such songs ! Not only should the *tone* of the singer tell its meaning, but the manner, the look, and every gesture should correspond with the sentiment.

But those who sing the very highest order of vocal music—the recitatives and airs of the great oratorios—do not all take this large and complete view of what ought to characterize their art-presentations. There is wanting the true devotion to the art. In the present day a very large profession of vocal culture is made. If musical institutions—colleges and schools, and a constant display of music-cases in omnibuses and public streets—mean a *reality* equal to their *seeming*, there must be much musical or *music devotion* in London ; but does it show itself in more *expressive* vocal art ? Moderate knowledge may be spreading itself, but higher knowledge is not apparent. The claims of this branch of our art are not, I think, better understood, as they are certainly not better met. Many modern songs are in evidence. *Art* cannot temporise in consideration of this large seeming-profession, and accept a fine voice instead of a just observance of the rules of *artistic* singing, which is nothing but *truthful* singing :

“O'er that Art which adds to Nature
Is an Art that Nature makes.”

In the past days, when art-knowledge was confined to the few—not spread out as it is now—there was long and untiring study, there were very high vocal attainments, and artists remarkable for lofty expression, justifying the great Poet's couplet :

“In framing artists, Art has thus decreed
To make some good, but others to exceed.”

But now, it would seem, the high mountains have been lowered to elevate the valleys, and consequently the traveller in the realms of vocal art does not have his heart and mind so transfixed by what presents itself to him as in the former days.

However, it is right to say, the best German singers of their own *Lieder* appear thoroughly aware of these principles of expression, which I cannot but hold to be essential to *true* vocal success. Some of those whom I have known have entered so fully into the work in which they have been engaged, that to attain their *ideal* they have requisitioned every faculty they possessed. Should we not in England act in like manner ? Why subject ourselves to criticism so just from the point of view to which I am referring ? It is no answer to say our nature is too cold and phlegmatic for the display of earnestness and feeling in the vocal art. Our nature is partially made by the circumstances of our educa-

tion and the preceptors under whom we are placed. If the education of the heart is never or rarely considered we should know where the blame lies. Some persons are taught to suppress feeling, others to stamp it out entirely, as being a property altogether objectionable, while the majority are ashamed to show it. I know some public singers quite incapable of showing emotion.

But, it may be said, if a singer have true sentiment, and a desire to be faithful to his art by a proper display of the requisite emotion, is it possible for him to be successful when the very atmosphere of an entirely fashionable audience is redolent of affectation, and everything is "charming"? Affectation is not feeling, it is something external and refers only to manners. It is that part of "civilisation" which is catching. Is imitation of feeling possible? This question might bring me within the arena of discussion. In one of Haslitt's Essays, I think it is, the proposition is stated that the greater artist is he who can display feeling without being himself subject to it; and the French author, Diderot, maintains the same. But I greatly mistake if the eminent gentleman who edits the English version of his book does not, in a preface, insist upon subjective feeling as being a necessary condition to its true exhibition.

However this may be, there is no doubt some persons are deprived of a legitimate success, which would be otherwise fully assured, owing to the existence of what may be called false shame. What is done for entertainment should never appear to be done earnestly (I do not wish to be understood as confusing "false shame" with bashfulness or timidity). It would be better, then, to leave it to those who have a more noble conception of what art means. Playing with its fringes does not assist its progress or help its dissemination. Those who have to do with art, with a serious intention of understanding its requirements, whether it be the branch coming within the scope of my present observations or not, or even if they touch it but as a pastime, should think their best, try their best, do their best, and they will have their reward in the result. As there is much included in the right presentation of anything worthy to be called art, it behoves all vocal aspirants to aim for an ideal conception, that can be understood, appreciated, and explained. Towards this, and to the attainment of this, all high teaching should be directed.

From this point of expression in the rendering of vocal music in general, I would ascend to the much higher platform of solo singing in oratorio music. Now, what is needed here is the due expression of the sublimity of sacred and inspired texts, and stories of high moment from holy writ, that have been translated into heavenly language by Handel,

Spohr, and other great composers, according to the inspiration they have received. Beyond question the vocal art, applied to the delivery of Biblical truths, is supreme when its loftiest expression results from the inspiration of *conviction*. For these Scriptural utterances are usually appeals from, or addresses to, the spiritual part of man's nature, and have to do with immortal hopes and interests.

To submit the question whether oratorio-songs are always thus rendered might not be advisable; or whether they are not often presented with no more appreciation of the words than if they were but a portion of an ordinary work, not even to be learned by heart, being always under the singer's eye. How far the fact of sacred oratorios being sung so frequently, and in all possible places, coupled with the fanciful idea that every one, after a few lessons—"finishing lessons," they are called—is able to sing, and should therefore have a "try" at sublime oratorios, has to do with this question, I leave others to say. "Fools sometimes rush in where angels fear to tread," is of general application, and it is no less than true that holy things too familiarly dealt with are apt to lose the odour of their sanctity, in their relation to him who thus deals with them.

It is recorded that the eminent baritone singer of some eighty years ago, Mr. James Bartleman, made a complete study of the words of every work in which he had to sing before looking at the music to which they were set. If all singers were able to recite their poetry or their texts with proper emphasis, just accent, and true understanding and expression, they would find themselves possessed of an additional power, showing itself in an estimate of the words they render, and of the value of the enclothed thoughts. I have inferred that those who sing in oratorios, such as "*The Messiah*," under the inspiration of conviction, *ceteris paribus*, are pre-eminently those producing the deepest effect upon the listeners. Let me try to illustrate the probability of this by reference.

If we look at some of the finest songs of the kind for the soprano voice, we shall find various underlying principles in them, springing from conviction. Take, for instance, "I know that my Redeemer liveth"; the sublimity of the words of this great song must be well studied for their right presentation. I know no air of Handel's more difficult than this to accentuate and express well, while nothing can surpass the simple beauty of the music. The words and their meanings need to be ingrained in the heart and mind of the singer, but intense *faith* must light up every bar of the music, or the true expression of the song is missed.

Then take "Farewell, ye limpid streams," from "*Jephtha*"; the feeling of patient resignation has to be

expressed. It is a solemn farewell to all that is beautiful and pure in the world, on the part of a maiden whose life has to be sacrificed ; this must be shown. But the pendant to the song—what a change ! Enraptured faith as to the brighter scenes above ! No coarseness of utterance here, but an expression approaching as near to sublimity as a rightly instructed exponent can display. How the music rises to the new inspiration, demanding that reverent enthusiasm be shown in the tone and seen in the gesture ! Call to mind one other song, that from "Theodora," "Angels ever bright and fair." Is not this an appeal, beautiful as a seraph's song, despite its uncommendable accents, sanctioned if not sanctified by time ; which has to be drawn out to its full realization for the sake of its expression ? All these examples must be treated as musical illustrations of spiritual outpourings to the truth of which the soul should be responsive.

All the songs named, and others I might adduce, as, for example, "Hear ye, Israel," from "Elijah," need the expression of real feeling ; this last needs also the aid of dramatic intensity in its second part. If, therefore, a singer be without the instinct for this, or cannot attain unto it by study and reflection, she would do well not to include the song within her *répertoire*, even if she have all its notes within the easy compass of her voice. Without the *dominant principle* of any one of these songs being apparent in its rendering, however excellent the vocalization and the elocution, the perfection of the piece has not been attained.

Take an example or two of baritone songs, and you will find principles in them demanding conviction in order to obtain a presentation of excellence. From "The Messiah" let me instance the air, "But who may abide the day of His coming ?" followed by the burst "For He is like a refiner's fire" (now usually, and unfortunately, assigned to a contralto) ; unless this song is felt and believed in, how can it be rendered in perfection ? In Spohr's oratorio "The Fall of Babylon" there is an air, "O what is man !" which includes one of the most touching prayers ever set to music. The sublimity of the prayer is reached by the elevation of Spohr's music. This piece is not for a tyro in our art, but for those only attuned to its height by a full appreciation of its fervency and the loftiness of Spohr's expression. The great song from "St. Paul," too, "O God, have mercy"—the first and last parts of which must be sung in a posture of the deepest humility—can never be presented aright unless its true spirit be embodied. The second movement of the song demands a glow of devotional zeal which must be felt, or the "glorious praise" becomes a mockery. When this oratorio was introduced in this country, adapted to English

words, this piece was rehearsed by the late Mr. Henry Phillips at the house of Sir George Smart, in the presence of Mendelssohn, who accepted with approbation certain slight alterations Sir George had ventured to suggest as being in accordance with the spirit of the English words. In one of his letters Mendelssohn refers with considerable mortification to the rendering of this air on the first occasion, I think, of its being sung, when the notes were delivered in a manner not in accordance with the deep pathos of the words or the expression of the music; reminding us rather of *Hamlet's* complaint to the player, "I had as lief the town-crier spoke my lines." It is not necessary to continue this part of my argument, or I should like to make a passing reference to the superb song from "*Elijah*," "It is enough," with its deeply pathetic expression of dejection, the result of sorrowful conviction on the Prophet's part that he is not better than his fathers, with its wonderful contrast in the intermediate part—zeal for the honour of the Lord, aroused by the wicked doings of the people. Will perfection of vocalization, truthful intonation, just recognition of *crescendo* and *diminuendo*, and fine elocution suffice for this? With these requisites only, we have what we may liken to a marble statue; but we want the inner life, the quickened pulse, the tone keeping pace with the emotion, the full realization of the position, to complete the *expression* of the composition, and reach the intention of the author. I have adduced these particular instances, because they are songs familiar to us all.

It will be inferred from what I have urged that I am of the number of those who consider this high moral tone of oratorio singing is greatly overlooked, and that, therefore, the true influence this singing might be capable of having is often missed.

Archbishop Whately, in his work upon Rhetoric, insists upon the importance of the orator always espousing the cause of truth; that he should believe in the justice of his own advocacy, and never be on the side of wrong. He cannot, he says, be at his best if his oratory is opposed to his convictions; the power of a righteous cause is the inspiration needed to lift the listeners to the height desired and lead them at will to assent and submission (I profess not to give the author's precise words, as years have passed since I read his works). All that is here said with respect to the orator is equally applicable to the singer of oratorio music. He must, or should, believe in his sacred utterances, know and *feel* them to be true, and have faith in their power. It would then be as if he was fulfilling a mission. Such, I have understood from those in whose judgment I could confide, was the method of the great John Braham. The effect at

times of his fine elocution, his perfect vocalization, and sublime expression, was such that, under the agitation of their own responsive feelings, his audience at times rose to their feet—"The short man became a giant." I might ask, is it not equally essential for a solo singer in "The Messiah" to be faithful to his utterances, as for a priest in his church, or a bishop in his cathedral? If you thought a preacher was uttering and expounding Scriptural texts in opposition to his own convictions, what form would his influence over you take? I put the question, but I leave it unanswered. The difference between this and the rendering of Handel's great sermon, with the texts disbelieved in or ignored, is not very wide.

The high moral tone of oratorio singing, to which I have referred, may be likened to the strict morality characterising the singing of some of our great poets. When the Rev. Mr. Bowles, a magazine critic of note, took upon himself to severely animadadvert upon the writings of Alexander Pope, the author of "Childe Harold" came to the rescue of the author of the "Essay on Man," and defended him with a power quite worthy of his brilliant and satirical pen, and *mainly* on the ground of the *high morality* of his poems.

If then, as votaries of our immortal art and believers in the real influence of its vocal branch, we set up a standard of its moral power, we should do our utmost to secure its recognition. A very great vocal artist once said, on its being asserted that he had reached the highest pinnacle of fame, that he was simply a child picking up pebbles on the sea-shore; this implies that, in his opinion, perfection of expression was far from being reached. (I believe he was availing himself of an illustration ascribed to Sir Isaac Newton.) So, I suppose, it is. We have our knowledge of art only in accordance with our powers of mental perception. Our advancement in the realms of art, if we rest not and our motto is "Excelsior," is as if folds of clouds were ever being unrolled before our eyes. The clearer the vision, the more readily discoveries in art and science are made, and each fresh discovery may be regarded as "a thing of beauty" and therefore, according to Keats's lovely expression, "a joy for ever."

Now, what I have said has been on the assumption that oratorio songs have in them some holy sentiment, some beauty of religious principle or truth to be expressed, as in "The Messiah." This brings me to another consideration of importance with regard to *expression*: I allude to *translations*. Not only the melody, taken as a whole, but every phrase and accented note even, in a vocal piece worthy of real study, is supposed to have a meaning; the composer having made the words and the sentiments enshrined his own, and

musically embodied them in phrases of sound, which he thinks and feels best fitted to express them. Thus the words are made to fall upon notes which are, so far as this method of making music convey sentiments is successfully pursued, representative of themselves as regards their relative importance. His melodic phrases are a counterpart of his poetry or text, rising or falling according as his mind has been influenced and affected by what he has been studying. The music and the words picture the same thoughts and sentiments, each in a language of its own. This will be at once an assurance of the difficulty under which a *litterateur* labours who addresses himself to the task of translating vocal music from one language to another; for he has to know something of the characteristics of the notes of the diatonic scale, and to this extent, at least, he must be a musician. He has to know the importance of musical accent, and of making verbal accent conformable to it, not only in a general way, but as regards the relative value of each separate word or syllable. He has to ascertain that the character of the words he selects are in accordance with the colour of the melody and the style or character of the musical phrases.

His translation, however, I affirm, cannot be literal, for such translations are usually valueless and always fail in accent. But it must faithfully embody, even to a shade of thought, the true and full spirit of the original, and all the accents of the words must conform to those of the music. It must be in itself poetic and true to the rules of poetry pertaining to the new language, for lines of poetry in one language are not always so in another. In short, it may be regarded as thoroughly successful—equal to the original—when it has the stamp of being the poem or libretto to which the music was first set. Then, indeed, the singer in English has a chance of presenting with just *expression* a fine foreign song, in accordance with the feeling of the composer.

If, for one single piece of vocal music, so much is needed to secure an adequate translation, how many special faculties should centre themselves in him who would *successfully* translate an oratorio or a great dramatic work! That so many translations have gone forth, and do go forth, of songs and operas of various languages, and are accepted without a murmur, without even a question as to appropriateness, shows how very little this truthful wedding of words to music is regarded.

The failure to realise this perfect combined expression *in detail* naturally and unfortunately leads singers (I speak in a general way) and their hearers to conclude that this essential is a non-essential, something of no moment. When a fine song by a foreign composer is recommended to their notice,

their question usually is: "Are there English words to it?" "O yes!" Then they are satisfied. The question as to perfect suitability never arises. But, I venture to say, such general indifference in this matter is an occasion of great loss to the meaning and beauty of both words and music, and is of much hindrance to the intellectual appreciation of the height to which solo vocal music should rise, whether viewed from the artistic or from what ought to be the public standpoint.

Much of what I have advanced respecting *translated* songs is applicable to *transposed* songs, for, although the several notes of the diatonic scale in any key have the same characteristics in their relation to the tonic, it by no means follows that the entire scale of any one key has the same sound as the scale of another. If this were so, a piece of music would present no difference in sound in whatever key it might be rendered, with the exception of its being higher or lower. But musicians know, if the general public do not know, that every key taken absolutely has its own separate expression, as certain chords have theirs; and the key in which an inspired writer thinks out his piece is the right one, and all others are more or less wrong, and to that extent the piece is deprived of its proper expression. (Early associations have much to do with the influencing of judgment and opinion, but it seems to me that any other key than F would not have equally well suited Beethoven's "Pastoral" Symphony, this being the one best calculated to bring to the mind and heart the feelings of pastoral and primitive life.) *

If what I have said be right, it is not hard of belief that a composer, when he has put his thoughts in a key which he feels is best suited to express them, should be dissatisfied at hearing them delivered in a key quite remote from his own. Say his song has been conceived under the impression that its feeling could be most truthfully exhibited through the sympathetic tones of a mellow contralto voice; it can hardly be supposed his satisfaction will be complete if he find it in the hands of an artist with a voice of quite an opposite character and calibre, looking in vain for the effects he contemplated in some of the best moments of his musical existence. But, apart from this, the composition is not as he wrote it; the relative notes may indeed be the same, so far as the difference in key will allow of their being so, but the absolute notes with their own especial tone in their perfect ratios are not there.

* Since writing this paper I have had the pleasure to read the accomplished Lecture, in your last session's Proceedings, on "The Musical Scale," which scientifically proves that the scale should be divided into fifty-two parts, to allow of changes of key without injury to the piece transposed.

I do not wish to press this argument beyond its true bearing, nor to make out a case against transposition that will not command the general assent of musicians who well think out their works. It is against the principle that I venture to speak, and against the supposition that it is a matter of indifference with respect to expression into what key a piece of music, vocal or instrumental, be put. Certainly there are cases when it may be a matter of supreme indifference, not only to the composition, but also to the writer, the latter never having established in his own mind into what key he will put his thought, assuming that he has first conceived them. The celebrated William Cobbett, who had political opinions which did not accord with the views of the majority, wrote some valuable little books, and in some of them he gave good and sound advice; and one bit of advice to writers was, not to sit down, with pen in hand, to think what they should write, but to sit down to write what they had already thought. The celebrated Richard Brinsley Sheridan must have been of the same opinion, for he said to his sister (according to the statement of Professor Henry Morley), "I have at last finished my comedy, 'The School for Scandal'; all that I have now to do is to *write it out*." If this principle was always acted up to by song writers, I think it would be matter of moment to them if their compositions were taken from the key in which they were conceived.

Those who think that one key does as well as another, sometimes justify their opinion on the ground that *musical pitch* is subject to change; that it was, for instance, a note lower in Handel's time than it is now, and that to get Handel's thoughts, as he musically conceived them, adequately expressed, his songs ought to be lowered a tone, and that, therefore, the principle of transposition is thus recognised. The opening recitative and air in "The Messiah," "Comfort ye, my people," in the key of D, would not be satisfactory, nor would it be like the E of Handel's time, if, indeed, it be quite accurate that the musical pitch is precisely one note higher now than then.

I have given reasons against transposition, and therefore I need not repeat them. The experiment of transposing one or more of the great oratorio songs was tried a few years ago, but as it was not repeated, it may be assumed it was not deemed a success. The voice, of course, has to be considered, or ought to be considered, before *raising* the pitch at any time to an appreciable extent. Indeed, to change the pitch at all is not only prejudicial to the past and its immortal music legacies, but is, I think, against the art itself; as it is against *the feeling and the cultivation of the delicately organized and sensitive musical ear*. No positive injury may be thus done to musical instruments—to pianofortes or

violins; but the voice cannot be raised with impunity to meet the requirements of an elevated musical pitch. A man might be as well asked to make himself two or three inches taller as to extend the open register of the *musical* tone of his voice a note or two when its *true* limits have been fully ascertained.

In the days of Mozart, the musical pitch was about the same as it was when Handel flourished. This may be partially inferred from the fact that the climaxes of the *crescendoes* in some of the great songs by the composer of "Don Giovanni" came to the same notes as in Handel's songs for the same class of voice. I refer in particular to the bass or baritone songs for evidence, as in voices of this kind the registers are, by Nature, the most strongly defined. In many of Mozart's songs for this class of voice, the climax in an ascending passage is reached upon the upper D, and it is thus reached in many of Handel's bass songs. Now, with the musical pitch of the period, the D at the summit of the *crescendo* passages is one of the best and richest tones of the open register of voice. But with the high musical pitch the majority of bass voices have to change to the upper or head register for this D, and probably for the leading note, and thus there is frequently an anti-climax, which is against one of the rules of musical expression. Most of the bass songs in "The Messiah," the great bass song from "Samson," "Honour and Arms"; that from "Alexander's Feast," "Revenge, Timotheus cries"; *Leporello's* song from "Don Giovanni," and the bass song from the "Creation," "Now Heaven in fullest glory shone," are but a few of many examples I could refer to for evidence of this statement. But to transpose any of these songs a note, or half a note lower, would not be giving the composer's intention, or truthfully expressing his thoughts, even assuming the pitch to have gone up exactly to that extent.

I have been led to make these remarks on the subject of musical pitch, because of the relation the change is supposed to bear to the subject of transposition, and as a consequence to the general subject of *expression*, and especially to *expression in vocal music*. With this last statement, I exhaust my present topics.

In justification of the foregoing arguments and observations, we have but to remember the power and force of *expression*, that abstract music without it is meaningless—sound without life; with it, it is the feeling—the grief, joy, or whatever it may be—of the composer, showing itself in this beautiful art; and it has to be embodied and interpreted by the executant; that vocal music of necessity bears a two-fold expression, the composer having first so thoroughly possessed himself of the sentiment of his text, that it is

subjective feeling, finding utterance in his music ; that this two-fold expression has to be *realised* by the song-interpreter, who then has to *render* it with all the truthfulness of *personal* feeling, giving colour to his tones to help the reproduction, through appreciation of the sentiment, in the mind of his listeners : that he has to give to this the best vocal art, with *perfect intonation* and *faultless elocution*. This is what art requires of the vocal student, and her claims are just and true ; and it is for those who have the honour to appear before this Association, in speaking on any branch of our art, to regard it from its very highest standpoint.

I have thus endeavoured to place before you some further "thoughts about singing," viewed from the platform of what I conceive to be vocal excellence. Estimating it from any other or lower point, I should not be acting up to my present claim, nor my present honourable position in your midst.

It remains for me to thank you for your kind attention. Before closing, I should like to say a word or two to the vocal student, who is endeavouring to make himself worthy of a position in this, my profession. The circumstances of the day, as regards this particular branch of the art, are very different from those ruling and influencing when I was a student. We have now schools and colleges in plenty—the *Ægis* of Royalty protecting with a glamour in the West, and that of civic greatness shielding and dazzling in the East—and pupils studying at them that are counted by thousands, a large proportion of whom aspire to this profession. How many hundreds come forward and claim to be singers every two or three years that never dreamt of such a claim before, and solely through the inspiration thus occasioned ! Many, after a too brief period of study, regard themselves as artists, and pose as such, having nothing, it may be, to fall back upon. But, coming forward with a certain stamp upon them, they are thought by a favourable, or an innocent public, to be everything that art can teach, or art-lovers can reasonably require. Whether this be so or not, I would rather leave others to say. These artists or students, however, appear upon public platforms, and are supposed to teach the public the newest and best forms of art ; and it is not needful to mention in this assembly that inefficient teaching is sowing the seeds of bad art. The numbers entering the musical world as vocalists and teachers being thus constantly on the increase, not to mention the many singers that come from all parts of the world and settle here, precludes the *possibility* of all making a living out of this branch of art. The demand is not equal to such a supply. This being so, to many who would be singers and teachers this career spells disappointment, if not ruin. Though high art, perfect art, brings gain—some-

times great gain—it is not art that gets £800 a night : it is something *external* to art that brings the large proportion of such a sum. But, assuming all these persons to be in every way worthy their profession, it can only be for a small percentage of them that there is a moderate income. And this is hardly adequate to the study, the toil, the anxiety, and the expense that have preceded it. If, then, you desire the front rank in this calling—and I must suppose you have no lower ambition—I would say—aim for nothing less than I have endeavoured to set forth ; labour, mentally as well as physically, first, to conquer all the technical and mechanical difficulties meeting you in the way—do not be down-hearted or suffer discouragement, but persevere ! When you have thus far succeeded, and surmounted all kindred obstacles, direct your energies and intelligence towards the lofty ideal of vocal excellence to which I have been alluding. Content yourself with nothing short of this. Be included among the few of the coming singers that will hand down the art to the next generation ! It is only the very best that will do this. Be worthy the consideration and the respect which this intelligent and noble branch of our art should always command.

But, on the other hand, unless your aspiration be to excel only as a critical amateur ; if, after much application, you become satisfied the goal of vocal excellence lies beyond your reach, by reason of your lacking some one—*only one*—of the several indispensable qualities essential in these days to true success, do not waste the best and brightest years of your life, as many have done, and as many, I fear, must now be doing, in the pursuit of a phantom ; but avoid their heart-piercing mortification by retiring at once, and in time, from the field of *vocal* art, and place your energies and the might of your intellect in another direction ; leaving *this* field, already crowded by numbers, many of whom will never be “placed,” for those who may have that *indispensable quality* that you lack, though possibly their spirits are not brighter, their courage not higher, their devotion not deeper, nor their determination more resolute.

DISCUSSION.

THE CHAIRMAN.—Ladies and gentlemen, you have anticipated the request I was about to make, that you should, with acclamation, thank Mr. Penna for the paper he has read to us. Among other sagacious remarks which William Cobbett made was one that we should take care not only to express ourselves so that we could be understood, but so that we could not be misunderstood, and I think that the purpose of our lecturer's paper to-night, and its argument, have been quite intelligible, and almost impossible to misunderstand. The lecturer has taken a certain stand, a certain ground, and has argued his point unmistakably and effectively. I suppose that the moral of it is that a vocalist should be an artist, and that he should be sincere in his art; also that the vocalist should be a musician. Unhappily it has been the case, at all events until quite recently, that "singer" and "musician" were very far indeed from being identical terms. With regard to the early remarks on definiteness of music, as to its appealing to the understanding, of course, as I once said in a paper of my own, read before this Association, it is a language which says just that which words do not, and cannot say; and it may be remembered, perhaps, that I then quoted Mendelssohn's words to the effect that "so far from music being to me an indefinite language, it is just the reverse, in fact, much more definite than words." With regard to persons, physically alike, resembling each other in character, I think that may be explained from the fact that when we see one person like another, we are apt to deduce from such resemblance an inference that they must necessarily be alike in character. Careful scrutiny, however, will frequently prove the incorrectness of this theory. I have often thought over the subject, and have come to the conclusion that frequently persons very much alike physically, are totally unlike each other in their mental and moral constitution. As to Pope speaking about discord, I suppose that is only one of many examples, showing how utterly unintelligibly people will talk about music, if they venture to talk about it at all. There are very few people, especially poets, who can talk about music scientifically without, as we say, putting their foot in it. Of course there are exceptions, as instance Robert Browning, who certainly had some technical knowledge of music. I might perhaps mention another instance. In a book published some years ago of Manx Tales, one of the best descriptions, given in a humorous form, is of a fugue structure. It is, however, very rarely indeed that a poet or literary man, not technically educated, talks about music

without showing his ignorance of what he is talking about. Archbishop Whately has been alluded to, and what he said on the subject of sincerity, and so on. He also remarked that when people said that they liked to be on the side of truth they very often really meant that they wished truth to be on their side, a very different thing altogether. With regard to Byron coming to the rescue of Pope on moral grounds, there is certainly something incongruous in the suggestion, and it would be amusing but for the seriousness of the subject. I do not think that there was much sincerity on the part of the preacher in this instance. I will ask you once again to repeat, by acclamation, our thanks to the lecturer, and will then invite discussion.

The vote of thanks was passed unanimously.

Mr. F. St. JOHN LACY.—I regret that I only just arrived in time to hear Mr. Penna speak about the accentuation of the words. That is a point which cannot be too much emphasised. It is unfortunately true, as many who, like myself, are engaged in training voices well know, that a great number of those who come to take lessons have but the most elementary ideas as to the importance of the words in connection with the music. Now, my idea is that in every song the words are, perhaps, the principal feature, while the music tends only to heighten and assist the expression of those words. In many cases pupils are not able to pronounce the words at all, and, further, take no interest in pronouncing them. The suggestion of the lecturer that pupils should read over the words beforehand is, I think, very apt, and one which I myself invariably impress upon my pupils. As regards artistic training, you will find, in the case of private teachers, that their pupils are mostly made up of amateurs who are not disposed to go in for a lengthy course of study, so that one cannot train them as one should, according to the highest artistic principles. Their idea is to be able to sing a few songs correctly. In such a case one either has to refuse to teach them, or the teaching is necessarily imperfect. As to the artistic shortcomings of publishers, they take that view of art of which I once read an explanation in a book devoted to dramatic art. At the end was a glossary, and there artistic success was defined as a commercial failure.

Rev. M. E. BROWNE.—Has the lecturer not been too hard on those translators whose works get into the publisher's hands? The task of translating an oratorio, an opera, or any music which has been written to other words is vastly more difficult and occupies a great deal more time than the writing of original words, so that it all comes back to the commercial argument—it does not pay. Very few people care to sacrifice the necessary time to do the work properly,

and they are put into the hands of any one who will do the work cheaply, and the result is cheap and nasty.

Mr. SOUTHGATE.—Mr. Chairman, I would just say a word or two with regard to translators, upon whom at times it has been my duty to be particularly hard. It should be remembered that the translation of words from one language to another, when you also have to put them into metre, and then make the accents and the rhythm coincide with certain musical syllables, is a very difficult task indeed. It is not always easy to translate prose into another language, but when, in addition, you have to put it into metre and rhythm, and then to make the words agree with certain special accents of the music, which the composer intended to be marked, a great difficulty has been created for the translator. Of course, some translators are more successful than others; but I do not think that we should find fault with them as a body, and say that some translations are very different from the originals, and do not help the union of words and music as they should. As to the question of pitch dealt with by Mr. Penna, I hardly think that it is germane to the subject of this paper; still, the observations were of some interest. He shows that the pitch from the time of Handel till now has risen. It may have been lower. If so, it is certain that in the case of an artistic singer, who has any thorough appreciation of his music, we must get just the same good effect now that we did years ago when the pitch was lower, and it would seem that songs were sung in a different key. Obviously it is a mistake to take a song written for the soprano and allot it to a contralto, or *vice versa*. Nevertheless, the transposition of pitch has been going on for a considerable time now, and it will continue to go on. Certainly in the case of works by the old masters music has been deliberately transposed. For instance, the "Quis est homo" in Rossini's "Stabat Mater" is generally altered a semitone, and another aria for contralto, if I remember rightly, is also always altered. Then we know that in the opera of former times, before the Wagner mode set in, it was no uncommon thing for a singer to say to the conductor: "Please put that down a semitone or a tone," as the case might be. I know that one of the tests Sir Michael Costa put to the applicants for his orchestra was that they should be able to play anything from certain operas he chose in any key he named, thus showing the necessity of having a thorough knowledge of transposition. I am very sorry that we have not a larger audience of singers here to-night, and I would say especially of foreign singers, who deign to come over here and settle in this benighted country. Possibly, they are only birds of passage, who come with light baggage and go away heavily loaded. We

have all heard some of these singers upon public platforms, and have noticed that they have mis-pronounced our words so terribly that, no matter how well the music was sung, we failed to derive very much pleasure from their singing. Recently at the Albert Hall, I heard a Russian lady sing in "Elijah," and it was positively as painful to listen to her words as to endure her wearisome tremolo. Undoubtedly the first requisite of a singer is to master the words and be able to enunciate them clearly and distinctly. Still we can hardly afford to throw stones at foreigners, since there are a great many English singers who offend very grievously in this respect. I can speak of a case within my own observation, where a lady, who is constantly singing before us, has such a wretched pronunciation of the words, that unless I take up the book to see I have not the remotest idea of what language she is singing in. With regard to the difficulty Mr. Lacy spoke about of professors not having their pupils long enough to do justice to them, that, of course, cannot be helped. If the desire of the amateur is merely to be able to sing a certain number of drawing-room songs, you cannot refuse him, but must do the best you can under the circumstances. A gentleman connected with the Royal Academy of Music, an admirable singer and well-known teacher, told me that pupils actually came over from America in order to "be put through an oratorio." The consequence is that they are "put through" in two or three lessons, and then return to their native country and proclaim themselves to be a pupil of Mr. So-and-so. That, certainly, cannot conduce to the welfare of the art.

Rev. C. R. TAYLOR.—I think that all that has been said about wedding the words to music, and studying the words before the song is sung, cannot be too strongly insisted upon. Composers should study the words more than they do, or, at least, more than they did. I do not want to speak of composers of the best class who are now living, because, in their case, I believe some attention is given to the matter. But when fault is found with singers for not expressing the words according to the proper principles of elocution, it must be borne in mind that sometimes the notes and the music are so set that it would be impossible to express the words according to the proper principles of elocution unless you take liberties with the notes and the music, and the question is whether one is justified in sometimes doing that.

Mr. F. GILBERT WEBB.—As to singers taking a few lessons, I think the remedy lies in the hands of the masters themselves. If men who have acquired a reputation were to refuse to give less than a certain number of lessons, pupils would go away with a more perfect knowledge of the art of

singing than they do at present. Then, also, singers would not be able to return to America, as has been stated, representing themselves to be pupils of certain masters. This reprehensible system is followed, too, in a great many instances, in smaller academies, much to the detriment of those academies.

The CHAIRMAN.—Unintelligible pronunciation or bad enunciation is a defect curiously enough not confined to singers, but is often a sad failing with speakers. I was listening to a reciter not long ago, when certain dramatic pieces were recited, which recitation may have been very dramatic, very appropriate, and very characteristic, and yet, for the life of me, I could not tell what the words were, so badly, so unintelligibly were they enunciated. I think people accustomed to speak should pay particular attention to clear enunciation, and certainly one has a right to expect it from a professional elocutionist. As to the advice to composers to study their words, I think that is most important. I am in the habit of telling my pupils when they bring up little songs for criticism: "Before you set your words to music, go alone into your room, stand up and recite the words, read them aloud, verify the language by some sort of gesture and emphasis, try to realise their full significance, and then determine which shall be your first strong note, your first accentuated note." Otherwise they will simply go on setting the words in common time, and let the syllables come anyhow and anywhere. I might say that I think a good deal of that bad habit of accentuation comes from our metrical hymns and psalms, in which, whatever the accent of the verse, there comes the same tune. If we take, for instance, such a hymn as "Abide with me," no two verses throughout are of the same accentuation, and, therefore, a tune may fit well with the first verse, where it will not fit well with any other verse.

Mr. PENNA.—I admit that the difficulties of translation are very great, and that it does not pay to translate. I once translated a German opera myself, and I remember that it took me a very long time. Of course I was very careful in an endeavour to enforce the different rules I have aimed to set forth in my papers. Mr. Southgate referred to the opera years ago. Doubtless he refers to the time when Sir Michael Costa was the conductor, and such singers as Grisi, Alboni, and, perhaps, Rubini and Mario flourished. In those days people went to the opera rather to hear singers than operas, and therefore it was essential that the great arias should be set in keys that would show off the singers to the best advantage. I know it to be the fact, for it came from Sir Michael Costa himself, that sometimes Rubini, a singer whom the fashionable world here and at Paris much

affected, would say to the conductor, when he had a cold, for his was a most peculiar voice : " I don't want you to put this song down, but up, to suit my voice." It is essential that the composer should first of all consider what a vocalist, if he write for a particular one, can do, and, as I said in the commencement, for his sake the composer should have the accents of the words in his mind strongly. Transpositions, generally speaking, are a mistake, although there are instances where they are advisable. I have known cases where the composer himself—I do not say that it is an essential thing that he should always have his song in his mind exactly as he will write it down—has not found the best key for his songs, but these are the exception. As to hymns, perhaps, occasioning a neglect of accent, while I have often noticed it, I have still oftener observed it in chants. We must put up with chants for psalms, but those with the least melodic inflection are to be preferred. I am speaking from personal experience, having been a singer myself at St. Andrew's, in Wells Street, Oxford Street, years ago. I know how important it is that for their full appreciation the words should be well wedded to the music, and, therefore, I think that the Te Deum and Jubilate should always be done to services. Chants will not fit well. They may suit one verse, but not another, as has been rightly observed.

A vote of thanks to the Chairman for presiding, moved by Mr. PENNA, closed the proceedings.

JANUARY 13, 1891.

CHARLES E. STEPHENS, Esq.,

IN THE CHAIR.

*AGAIN, WHAT IS SOUND?
THE SUBSTANTIAL THEORY VERSUS THE WAVE
THEORY OF ACOUSTICS.—II.*

BY GEORGE ASHDOWN AUDSLEY, F.R.I.B.A.

I COME before you once more as the advocate of the Substantial Theory of Sound, and as a letter-in of light upon some of the fallacies and impossibilities of the time-honored mechanical theory, commonly called the Wave Theory of Sound. I come before you with most pleasant recollections of your courteous and patient hearing on the previous occasion, when I introduced the Substantial Theory to your notice for the first time. I took you somewhat by surprise on that occasion, for the subject was new to you; and few were prepared to question, at the moment, the bold statements I then made, to discuss the arguments I advanced, or to see the full force and teaching of the experiments I performed. Now, however, matters are different, for you have had full opportunity of reading and considering my first paper; and many of you have either heard or read my good friend Dr. Pearce's admirable lecture. Some present may have listened to my second lecture, delivered on November 8th, before the National Society of Professional Musicians; and now, with so much additional information and thought, it is probable you have come to some conclusion in your own minds. If, as musicians, you have been content to reflect on your daily experience in matters of sound, and have elected to use the reasoning powers and to exercise the common sense God has given you with an open and unprejudiced mind, I know very well, from my own experience, towards which theory you incline; but if, on the other hand, you have shut your ears to your daily experience, and have blindly pinned your faith to great names with their array of mathematical formulæ, then I know how unsubstantial your theory is.

There is a firm belief prevalent that in matters of science one is nothing if one is not mathematical; under a cloud of calculations and a fog of formulæ anything will be swallowed as profoundly scientific. May I ask you, at this point, what has the mathematical mind done for your glorious art in the past—what is it expected to do for it in the future? Did it aid Beethoven to write one bar of his immortal “Nine,” or Bach to pen one note of his matchless fugues? God grant that the dry-as-dust mathematical formulæ may be kept out of music; and out of all matters of sound, unless they can do more than bolster up the monstrous absurdities of the impossible wave theory.

I may reasonably look for an animated discussion at the close of my present address, for I shall certainly do my best to provoke it; but my recent experience at the meeting of the National Society of Professional Musicians may well introduce an element of doubt in this matter. Amongst my large audience on that occasion were, I understand, several wave-theorists, who came to scoff, and stayed to—well, they stayed to say nothing. Not one ventured to say a word in behalf of his beloved wave theory, shaken to its very foundations by the thoracic exertions of a tiny locust. The only remarks which followed my address were strongly in favour of the theory I had advocated.

I have now the pleasure of continuing the subject of my first address, and of submitting for your consideration a few more arguments and proofs against the popular undulatory theory, and, accordingly, in favour of the substantial theory, which presents no difficulties to the understanding, and which accounts in a consistent and perfectly logical manner for all the known and observed phenomena of sound production and propagation.

I am, however, free to admit, and, as a human being with the very limited powers granted to such a being, most willingly admit my inability to tell you what sound really is. I cannot tell you, any more than any other man can, what light, heat, magnetism, electricity, gravitation, or cohesion are, beyond recognising them, along with sound, as simple forces of nature—*forces* they must be, for one and all of them exert action on inert matter, and show themselves capable of *doing certain work*.

It is essential before you can clearly see the impossibilities of the undulatory theory and realise the perfect consistency and simplicity of the theory which recognises sound as a *force* of nature, that you should understand what *matter* and *force, inertia and motion* truly are. You must realise, once for all, that all *matter* is by the immutable laws of Nature inert and incapable of moving itself; and that it is alone through the operation of *force* any particle of matter can

change its position in space. Once your minds have laid hold of these simple and obvious facts a decision between the rival theories of sound will become an easy matter. I speak as a substantialist, and one whose scientific faith is firmly based on the immutable laws of Nature; and not as a wave-theorist, who shuts his eyes to natural truths and shuffles, one way or another, out of every difficulty. This is neither the time nor the place to go deeply into the discussion of inert matter and force; but I shall in my present paper submit a simple question for your consideration, and if there is a wave-theorist present, who does not wish to shuffle out of a difficulty, let him answer it to your satisfaction if he can; I know he cannot answer it to mine according to the teaching of the wave theory.

In my first address I directed your attention to the sympathetic vibration of two unisonant tuning-forks; and I caused a silent fork, held by a member of my audience at the far end of the room, to instantly sound by bowing the companion fork on my table. This result is termed *sympathetic vibration*, and the term is appropriate. Before I go farther, I may say that, since my first lecture, I have tested the power of sound-force in this direction much more severely. In my house there is a music-room about forty feet in length, which is entered by a door opening from a good-sized square hall; from this door to the extreme end of the music-room is a distance of about thirty feet. All the walls of the room are thick; that between the room and the hall being about eighteen inches thick of solid bricks and plaster. The door is thick and solidly made. Opening from the other end of the hall is a morning-room. Now, I placed a fork in this morning-room, and damped it perfectly, then I went into the music-room and shut the door, and taking the companion fork to the farthest corner of the apartment I bowed it for about a minute and then silenced it. On going to the distant fork I was surprised to find it sounding audibly. This effect is marvellous enough even when we accept sound as a force of nature and place it in the same category as gravitation, electricity, and magnetism; but what must we say of it if we look at it according to the mechanical and problematical wave theory? Consider for a moment what the bowed or original sounding fork had to do. Firstly, it had to set the entire volume of air of the room into active vibration, sending 256 sound-waves, about 4 feet 4 inches long, through its 12,500 cubic feet of air in each second of time. Secondly, it had to send these waves with sufficient power against the walls and door to set them into corresponding wave-formed vibrations. Thirdly, the vibrations conveyed through the eighteen-inch brick wall and the heavy door had in turn to carve the whole of the air in

the hall and the morning-room, farther on, into waves, precisely similar to those in the interior of the music-room; and, fourthly, these waves had to impinge with reiterated blows against the heavy solid steel prongs of the silent fork, which weighs fifteen ounces, and to set them into sufficient vibration to produce audible sound. You must bear in mind the fork I bowed in the music-room at no instant vibrated with an amplitude exceeding the one-fifteenth of an inch. Now, although there was only one door to the music-room from the hall, and that fitted tightly, and had a thick skin mat placed against its lower edge, of course things were not air-tight: and divining that the wave-theorist, catching at a straw to save his theory, might use this fact as an argument, I had a strong wooden box made, with its lid bedding air-tight against soft india-rubber, and in this I placed a silent fork. To prevent vibrations being conveyed to the wood of the box by the floor or table on which it was placed, I insulated it on four pieces of soft india-rubber tubing. Moving away about fifteen feet from the box, I bowed for a few seconds and then damped the companion fork; and then carefully lifting the lid of the box, I had the satisfaction of hearing the enclosed fork sounding distinctly. This time I knew everthing had been air-tight.

What I have been telling you about in connection with my experiments on the phenomena of sound has, as you will see, direct bearing on the simple question I am going to submit for your consideration.

According to the teaching of all wave-theorists, there can be doubt about neither the function nor action of the tuning-fork in producing sound and causing the phenomena of sympathetic vibration. There was a learned wave-theorist present at my first lecture; and I shall now pay him the compliment of quoting him as an authority on the action of the tuning-fork in sympathetic vibration. Thus writes Mr. Sedley Taylor, in his "Sound and Music": "A more instructive method of studying resonance is to take two unison tuning-forks, strike one of them, and hold it near the other, but without touching it. The second fork will then commence sounding by resonance, and will continue to produce its note though the first fork be brought to silence. It is essential to the success of this experiment that the two forks should be rigorously in unison. If the pitch of one of them be lowered by causing a small pellet of wax to adhere to the end of one of its prongs, the effect of resonance will no longer be produced, even though the alteration of pitch be too small to be recognised by the ear. Further, the phenomenon requires a certain appreciable length of time to develop itself; for if the silent fork be only momentarily exposed to the influence of its vocal fellow, no result

ensues. The resonance, when produced, is at first extremely feeble, and gradually increases in intensity under the continued action of the originally excited fork. Some seconds must elapse before the maximum resonance is obtained. The conditions of our experiment," continues Mr. Sedley Taylor, "show, directly, that the resonance of the second fork was due to the transmission by the air of the vibrations of the first, the successive air-impulses falling in such a manner on the fork as to produce a cumulative effect. If we bear in mind the disproportionate mass of the body set in motion compared to that of the air acting upon it,—steel being more than six thousand times as heavy as atmospheric air for equal bulk,—we cannot fail," says Mr. Taylor, "to regard this as a very surprising fact." I can assure this acoustician that it would be a much more surprising fact than he seems to realise if it only happened in the manner he imagines. What will he think of the phenomenon, under the conditions of my experiments, when the forks were not held near each other, and when the "*air-impulses*," which he considers necessary agents in such cases of sympathetic vibration, had to pass through a thick brick wall and a strong door, and, in addition, to traverse nearly sixty feet of space, in one instance ; and to traverse a distance of about fifteen feet, and then penetrate through the thick sides of an air-tight box, in the other instance ?

Professor Tyndall's remarks substantially agree with those of Mr. Sedley Taylor on this subject. He says : "This communication of vibrations through wood and air may be obtained when the forks, mounted on their cases, stand several feet apart. But the vibrations may also be communicated through the air alone. Holding the resonant case of a vigorously vibrating fork in my hand, I bring one of its prongs near an unvibrating one, placing the prongs back to back, but allowing a space of air to exist between them. Light as is the vehicle, the *accumulation of impulses*, secured by the perfect unison of the two forks, enables the one to set the other in vibration."

Both these experimenters seem to have been somewhat timid in their researches into this phase of sympathetic vibration, for both state it to be necessary to bring the sounding and silent forks close together when air alone is the medium of conduction between them. Surely, however, they were aware that the sympathetic vibration could be established when the silent fork is placed or held more than one hundred feet from the sounding one; although, in all probability, neither of the scientists ever tested the power of sound-force in sympathetic vibration as I have tested it. I have a grave suspicion that in the fork experiment, as in some other experiments given in popular text-books, the

aspect most favourable to the wave theory is alone given. There seems, at first thought, nothing revolting to one's common sense in the idea of mechanical impulses being conveyed from a vibrating fork to a still one through a short air-space, say of an inch or so; but the writers of such text-books would have to serve up their mechanical wave theory in some specially savoury and sense-lulling fashion not to startle the thoughtful student, were they to candidly describe the marvels of sympathetic vibration, as I have just done from personal tests and experience.

Had I met with an experiment in a book on acoustics, such as that I performed in the rooms of my house, or with the air-tight box, when I was a believer in the popular theory of sound, and had I found it attributed to mechanical air-impulses sent off from the prongs of a fork vibrating to the full extent of $\frac{1}{10}$ th of an inch, I verily believe I should have thrown the book into the fire.

Now for my simple question. If I place two unison forks opposite each other, and set one into vibration, the other instantly commences to vibrate and send forth sound. This effect has been described, and the wave theory explanation given. Now, were I to place in the position of the excited fork a small piece of clockwork, actuating a bar of wood, of the same dimensions as the fork prong, at the same rate per second, say 256 complete swings, in the same pendular motion, and at the same extent or amplitude of swing, would the silent fork begin to vibrate and send forth sound? This is the simple question I ask of you who are believers in the wave theory. Let any wave-theorist reply either in the negative or the affirmative, if he dare, and he crushes his own theory. As no one is likely to answer this simple question, let me show you the horns of the dilemma in which it puts the believer in the mechanical theory of sound. Suppose he answers in the affirmative, as he is bound to do if consistent, fully believing that, as the excited fork in the original experiment did nothing beyond sending forth air-waves or air-impulses to strike with reiterated blows against the prongs of the silent fork, anything which will send precisely similar air-waves or air-impulses must of necessity affect the silent fork and cause it to vibrate.

I freely admit that if the wave theory were true, the piece of wood, vibrating with a pendular motion exactly the same number of times in a second, would most certainly put the silent fork into vibration. My reply to this wave-theorist is simple. I say that nothing large or small, set vibrating to and fro in any manner whatever, will, so long as it does not send forth *sound* or *sound-force*, affect the silent fork in the slightest degree. And this fact alone refutes the fundamental teaching of the undulatory theory of acoustics.

Here is a grand opportunity for wave-theorists to settle for ever the correctness of their air-wave hypothesis, and to nip in the bud the, to them, hateful substantial theory. Let them construct a small machine, which will impart a pendular motion to a bar of wood or metal fixed on an axis, and so adjusted and timed by the usual clockwork method, that it will vibrate to and fro (in the middle fast, and towards the ends of its swings, slowly) exactly 256 times in a second. Such a machine presents no mechanical difficulty, and will do its work accurately, without producing a musical sound, seeing that the molecular structure of the swinging bar is not disturbed: only a slight whirr or jerky noise will be heard, incident on such a motion. Let them set the machine in motion, and then place a silent fork, of 256 vibrations, in any favourable position in relation to the mechanically vibrating bar of wood or metal. They may place the fork within an inch or two of the bar if they like; for I shall not ask them to place it sixty feet away in another apartment, or enclosed in an air-tight box; and if the air-waves or air-impulses, which, according to their theory, are bound to be sent off, just as they are affirmed to be sent off from the vibrating fork prong, set the silent fork into sympathetic vibration, I shall acknowledge the truth of the wave theory and never again raise my voice in advocacy of the substantial theory. I challenge the whole acoustical world to put their *mechanical theory* to this *mechanical test*, whilst, in advance, I predict its total failure. Will the irate wave-theorists and the mathematicians of Cambridge, who have staked their scientific reputation on the wave theory and the algebraic sums of imaginary air-waves, take up my challenge? I doubt it. I have satisfied myself on the subject, and can, with assurance, predict the failure of the experiment. *I say to the acoustical world that no air-waves, however set up, will excite a tuning-fork into sympathetic vibration, unless the exciting body which is supposed to create air-waves or air-impulses emits a sound in perfect unison with the sound natural to the tuning-fork.* It rests with the wave-theorists, who want to turn the laugh against the substantial theory of sound, to prove me wrong, or, failing that, to cease supporting a theory so hopelessly shattered on their own showing.

I have shown the one horn of the dilemma on which the wave-theorist finds himself impaled in answering my question in the affirmative; now for the other horn on which he will find himself landed if he answers it in the negative. Of course, if he says the bar of wood or metal, set into a uniform pendular motion by mechanical means, *but without producing a musical sound*, will not affect a silent fork of precisely the same vibrational number, then he abandons the fundamental

teaching of the undulatory or motion theory of acoustics. He must be consistent in all things, and bear in mind what sound is stated to be by the high priests of his own scientific religion.

Professor Helmholtz says: "The *motions* proceeding from sounding bodies are usually conducted to our ear by means of the atmosphere. The particles of air must also execute periodically recurrent vibrations in order to excite the *sensation* of a musical tone in our ear." And now comes the remarkable passage which I directed your attention to last session. The professor continues—"This is actually the case, although in daily experience sound at first seems to be some agent, which is constantly advancing through the air, and propagating itself further and further." How dangerously near, for a wave-theorist, was Helmholtz to the substantial theory when he penned these words.

Professor Helmholtz also says: "A periodically oscillating sonorous body produces a *similar periodical motion*, first in the mass of air and then in the drum of the ear; and the period of these vibrations must be the same as that of the vibrations in the sounding body."

Professor Mayer, the leading American wave-theorist, says: "Sound is the sensation peculiar to the ear. This sensation is caused by rapidly succeeding to-and-fro *motions* of the air which touches the outside surface of the drum-skin of the ear. These to-and-fro motions may be given to the air by a distant body, like the string of a violin. . . . These tremors of the air, however, are not sound, but the cause of sound. Sound is a *sensation*; but as the cause of this sensation is always vibration, we call those vibrations which give this sensation *sonorous vibrations*. Thus, if we examine attentively the vibrating string of the violin, we shall see that it looks like a shadowy spindle, showing that the string swings quickly to-and-fro; but, on closing the ears, the sensation of sound disappears, and there remains to us only the sight of the quick to-and-fro motion which, the moment before, caused the sound." I may appropriately pass one remark on this worthy scientist's views of sound. According to them and to all the laws of logical reasoning, it is obvious if all creatures in the world were suddenly struck with complete deafness, sound would disappear from the universe. Such an idea is just as ridiculous as that which logically follows the reasoning of those who hold the undulatory theory of light—namely, that if every living creature had its eyes put out the world would be plunged in darkness.

Professor Tyndall says: "Sound is propagated as a wave or pulse through the air. This wave impinging upon the tympanic membrane causes it to shiver, its tremors are transmitted through the drum to the auditory nerve, and

along the auditory nerve to the brain, where it announces itself as sound."

Mr. Sedley Taylor, in speaking of our sensations and their causes according to the accepted undulatory theories of science, says: "Analogy, then, indicates that some *purely mechanical phenomena* external to the ear will prove to be turned into the sensation we call sound by a process carried on within that organ, and the brain with which it is in direct communication. This mechanical agency, whatever may be its nature, is usually set going at a distance from the ear, and, to reach it, must traverse the intervening space. . . . The air of the atmosphere is, in the vast majority of cases, the medium which conveys to the ear the *mechanical impulse* which that wonderful organ *translates*, as it were, into the language of sound. Having," continues Mr. Sedley Taylor, "ascertained that a material medium, in every case, acts as the carrier of sound, we have next to examine in what manner it performs this function. The roughest observations suffice to put us on the right track, in this inquiry, by pointing to a connection between *Sound* and *Motion*."

These quotations, from four authorities on Sound, will probably be sufficient to keep the wave-theorist from venturing on a hasty and inconsistent answer to my simple question. It would hardly be right of me to leave this question without answering it myself in the light of the substantial theory. The results of my experiments in connection with the phenomenon of sympathetic vibration between the unison forks prove that it does not matter where the silent fork is placed in relation to the bowed or excited fork, so long as it occupies a spot where a healthy ear could hear the sound of the bowed fork; sympathetic vibration is certain to be set up in the silent fork, more or less strongly just in proportion to the loudness or weakness of the sound to an ear occupying the same position as the sympathising fork. The whole phenomenon depends on sound or, more correctly, sound-force; and cannot possibly, under the severe conditions of my tests, depend on mechanical air-waves or reiterated air-impulses sent off from a small fork prong and its resonant case through a wall, closed door, and about sixty feet of air; or through the thick sides of an air-tight box. That a natural force, conducted by mysterious natural means, almost as subtle as electricity itself, should be able to create this sympathetic vibration, under such extreme conditions, is sufficiently surprising; but for any sane man to believe that the effect is produced by air-impulses sent off from a fork vibrating at the full not above $\frac{1}{18}$ th of an inch is still more surprising.

But after reading and studying the popular writings of acousticians on the wave theory for many years, I have come

to that state of mind in which one is surprised at nothing they can say or teach.

An article in one of Harper's educational journals, by a popular American authority on acoustics, contains the following more than surprising statement: "When two clocks whose pendulums have the same range of vibration are in the same room, and the clock doors are open, if the pendulum of one is set in motion the pendulum of the other will also move. This is the reason: every time the pendulum of the clock vibrates it sends a *puff of air* in the direction of the pendulum of the second clock, and these *puffs*, continued regularly, set the pendulum of the second clock a-going." These words, amongst many others of a similar calibre, were written for the education—heaven save the mark—of the young—the very young, I should think; but of such is the kingdom of the wave-theorist. But, seriously, was there ever such a gross insult to common sense penned in the name of science? This American scientific joke—let us trust it was offered to the shade of Artemus Ward—is faintly repeated, like a scientific echo, by Mr. Sedley Taylor, in his "Sound and Music," where he assures us "that the resonance of the second fork was due to the transmission, *by the air*, of the *vibrations* of the first, the successive *air-impulses* falling in such a manner on the fork as to produce a *cumulative effect*."

Although I have to bring the watch somewhat prominently before your notice on the present occasion, I am not quite done with the joke of the clocks yet. In the writings of England's most popular acoustician and wave-theorist we find the following two statements. Compare them, for they emanate from the same pen. Professor Tyndall says: "When a common pendulum oscillates, it tends to form a condensation in front and a rarefaction behind. But it is only a *tendency*, the motion is so slow that the highly elastic air moves away in front before it is sensibly condensed, and fills the space behind before it can become sensibly dilated. Hence *sonorous waves or pulses* are not generated by the pendulum."

His second statement is this: "If two clocks, with pendulums of the same period of vibration, be placed against the same wall, and if one of the clocks be set going and the other not, the *ticks* of the moving clock transmitted through the wall will act upon its neighbour. The quiescent pendulum, moved by a single *tick*, swings through an extremely minute arc; but it returns to the limit of its swing just in time to receive another *impulse*. By the continuance of this process, the impulses so add themselves together as finally to set the clock a-going."

Now, gentlemen of the wave theory side of the house, what

are we to make of all this? One scientist, in his desire to educate the young, tells us the second clock's pendulum is put in motion by *puffs of air* from the first clock's pendulum; and that the clock's doors must be left open so that the *puffs of air* may have free action. The other scientist assures us, on the one hand, that no pendulum can generate sonorous waves or pulses of any sort. Then, on the other hand, he assures us that the *ticks* from a going clock will set a stationary pendulum in motion. What does he mean by *ticks*? Sound waves, formed of "condensations and rarefactions," I presume; for no sound can even go "on tick" without waves, according to his theory.

These statements anent the clocks are, however, mild to the rather startling statement made by the American acoustician and wave-theorist in his article in *Harper's Young People*. This faithful and profound acoustician says: "The first iron bridge ever built was that at Coalbrookdale, in England. While it was building a fiddler came along, and said, 'I can fiddle that bridge down.' The workmen, little alarmed, bade him fiddle away to his heart's content. Whereupon the musician tried one note after another on his instrument until he hit one in tune with the movement of the bridge, and the structure began to quiver so perceptibly that the labourers begged him to cease and let them alone, which he did; otherwise," continues this sapient scientist, "*the structure would surely have fallen.*" This paragraph might be looked upon as a Yankee joke did we not find such a man as Professor Lovering, of Harvard College, giving the absurd statement the weight of his scientific pen. He says: "All structures, large or small, single or complex, have a definite rate of vibration, depending on their material, size, and shape, as fixed as the fundamental note of a musical chord. When the bridge of Coalbrookdale (the first iron bridge of the world) was building, a fiddler came along and said he could fiddle it down. The workmen laughed in scorn and told him to fiddle away to his heart's content. He played until he struck the *key-note* of the bridge, and it *swayed so violently* that the astonished workmen commanded him to stop."

Gentlemen, this is the sort of humbug scientists and acousticians have dished up as food for students of acoustics and the aspirants for musical honours; and I much regret to say this humbug is not the most serious phase of the false teaching presented in our standard text-books on acoustics. The most serious phase is that in which the falsity lies too deep to be readily detected by the trustful reader. I shall give some instances of this later on.

The subject I shall now enter upon is Conduction of Sound, and I shall treat it, for the present at all events, in a

sketchy and popular manner. The subject, in its fullest scope, embraces almost all the well-known phenomena of sound.

First of all, let me introduce the watch to your special notice as a sound-producing machine. Although the watch is mentioned in works on acoustics, I gravely question if many professors or students have ever seriously considered it as I am going to consider it now : most certainly it is not a first-class friend to the wave-theorist, and this probably accounts for so little having been said about it by acousticians.

The watch is not a musical instrument, but it produces regularly repeated sounds—noises if you like—which, according to the popular theory, require the operations of sound-waves just as much as the sounds of the strings of the violin or the tones of the flute. Well, let us open a watch and see by what means its regularly repeated sounds are produced. Aided by a magnifying glass, we soon find that every portion of the works move silently except that known as the *escapement*. In the case of a “lever watch” this consists of a small rocking piece of steel, called the *lever*, to which is attached a curved piece with a *pallet* at each end. The lever rocks on the *arbor* of the pallet-piece. It has at its inner end a notch, into which a pin in a small disc on the *verge* of the balance works. The pallets engage a small 'scapewheel, which has long, pointed teeth. The outer end of the lever strikes against two small vertical pins, about the thickness of hairs, which bound its action. Now the sound produced by the watch proceeds entirely from this tiny rocking lever, striking the teeth of the 'scapewheel and against the vertical pins. In an ordinary watch, the steel bar which forms the rocking lever measures about $\frac{5}{16}$ ths of an inch in length, $\frac{1}{16}$ th of an inch in width, and $\frac{1}{40}$ th of an inch in thickness. It seems difficult to decide where we are to look for the vibrations which send off the sound-waves, and “carve the air into condensations and rarefactions,” to use the language of a distinguished wave-theorist. Do they take place in the teeth of the 'scapewheel, in the steel of the lever itself, or in the pins against which the lever strikes? Under any circumstances, one cannot examine this tiny piece of mechanism without marvelling at the accommodating nature of the air to be carved into “condensations and rarefactions” by a slowly rocking bar of steel, $\frac{5}{16}$ ths of an inch long by $\frac{1}{16}$ th of an inch thick. However, we see the minute and weak motions, and hear the sounds, and, of course, the sound-waves are passing between the watch and our ears, and bombarding their tympanic membranes. This is all passing strange and difficult to comprehend, especially when we bear in mind what Professor Tyndall has told us

about the clock pendulum and its inability to produce sound-waves or air-waves having the necessary "condensations and rarefactions"; and when we observe that the watch-lever only wags to and fro about twice in a second, and, taking the minute distance it travels, that it moves very much slower than any clock pendulum. But we have not yet done with the strange things connected with the watch.

We now close the inner cap and shut in the mechanism; but still the sounds are perfectly audible. This begins to make us look askance at the popular theory, for there are evidently only very minute chinks, where the two parts of the cap join, through which the sound-waves can pass to "shake the drum of a distant ear." We completely close the watch within its strong gold case, and still the sounds are perfectly audible. As there is now not even a chink for the sound-waves, set in motion by the tiny escapement, to find their way through, we can, in deference to the wave theory, come only to these conclusions: Firstly, that the air-waves from the vibrating parts of the escapement set the inner metallic cap into corresponding vibration; secondly, that this cap sets the air between it and the intermediate case into corresponding vibration; thirdly, that this air sets the intermediate case into corresponding vibration; fourthly, that this intermediate case sets the air between it and the strong outer case into corresponding vibration; fifthly, that this air sets the outer case into corresponding vibration; and, lastly, that this outer case is set into such powerful vibration that it carves the surrounding free air into "condensations and rarefactions," sending off sound-waves at the velocity of about 1,120 feet a second, with force sufficient to shake the unsympathetic and flaccid drum-skin of the ear. This certainly seems a big job for the air-waves sent off by the vibrations of the parts of the tiny escapement to do; yet, if the wave theory is true, all this and more is done by those air-waves.

The watch is, you will admit, viewed from any standpoint, a wonderful sound-producing machine; even wonderful when viewed in the clear light of the substantial theory which sweeps away all such impossibilities as air-waves and vibrating metallic cases, and leaves us face to face with natural sound-force, liberated by the disturbance of the particles of the sonorous body caused by vibrations or shocks, and with the natural laws of conduction ordained for sound-force.

I shall now use the watch to show the marvels of sound conduction through solid substances. As an acoustician, recognising the substantial theory, I do not profess to tell you in what manner material bodies conduct sound, any more than, if I was an electrician, I could tell you in what

manner the electric-force is conducted by some material bodies and rejected by others. In both the matters of sound and electricity we are in the presence of natural forces, subject to natural laws, and full of secrets and mysterious workings beyond the ken of mortal man.

Taking the closed watch, we have it held against a solid brick partition-wall with its two-fold coatings of plaster and paper, and then we place our ear against the other side of the wall. The sound of the watch is still perfectly audible. Now, according to the wave theory, the air-waves from the escapement have, in addition to the big job already mentioned, to shake into sound-waves the solid brick and plaster wall, and that so forcibly that the wall, in turn, creates air-waves between itself and the drum-skin of the listening ear. Then, in accordance with the approved text-book phraseology (and despite the fact that the said drum-skin is a flaccid mass of loose tissue, altogether incapable of receiving or transmitting any sound-wave vibrations whatever), the air-waves communicate their vibrations to the drum-skin, and the drum-skin sends them on to the "little ear-bones" behind, which in turn communicate them to "the fluid of the inner ear, where they shake the fibres of the auditory nerve, and so affect the brain that we have the sensation which we call sound."

Every-day observation proves to us that in the process of conduction, sound passes with considerable difficulty from one conductor to another. The wave-theorists see this and acknowledge the natural phenomenon; but they shut their eyes and minds to the fact that, if their undulatory theory be true, the passage of sound-waves from one material to another would, in the majority of cases, if not in all, be a mechanical impossibility. If any unprejudiced and truth-seeking wave-theorist will consider this one matter of conduction of sound from first to last, he will, at the conclusion, lay aside the wave theory as altogether untenable. In the instance I have just given, of the watch held against one side of a brick and plaster wall with the ear laid against the other side, the wave-theorist is bound to admit several changes of conductors—air, metal, brick, plaster, &c.; and as his *conduction of sound* is purely a *mechanical action* throughout, a *wave-motion* of some sort, respecting which even our boldest acousticians seem somewhat hazy and wisely disinclined to be very explicit, it simply comes to this—that after the sound-waves, carved by the watch escapement in the surrounding air, have succeeded in setting into corresponding vibration the layers of air and metal of the watch, and then some ten or eleven inches of compact brick-work and plaster, *the surface of the wall farthest from the watch must, through the continued influence of those sound-*

waves from the escapement, be set moving to and fro with an amplitude sufficient to carve the air between it and the tympanic membrane of the ear into air-waves, having "condensations and rarefactions," and sufficient to-and-fro motion to shake the tympanic membrane, the chain of ear-bones, the apparatus of the inner ear, and the auditory nerves.

I have tried to faithfully represent the teaching of the wave theory in this matter, but if I have warped, twisted, or in any way misrepresented that teaching, let any wave-theorist here or elsewhere put me right. Let him tell me how the sound-waves started by the tiny escapement find their way thence through the watch cases, the intervening layers of air, the solid brick and plaster wall, and the air-space beyond, to my ear and brain. I shall listen to his explanation with attention and give it an unprejudiced consideration.

The acoustician may not want any information to aid him in this notable example of sound conduction, that is, to explain how it is done; but, doubtless, some of my hearers would like to know what the authorities on the wave theory say about the conduction of sound in solids. I cannot do better than give you Professor Tyndall's graphic description of an experiment performed at the Royal Institution. He says: "In a room underneath this, and separated from it by two floors, is a piano. Through the two floors passes a tin tube two and a half inches in diameter, and along the axis of this tube passes a rod of deal, the end of which emerges from the floor in front of the lecture table. The rod is clasped by india-rubber bands, which entirely close the tin tube. The lower end of the rod rests upon the sound-board of the piano, its upper end being exposed before you. An artist is at this moment engaged at the instrument, but you hear no sound. When, however, a violin is placed upon the end of the rod, the instrument becomes instantly musical, not, however, with the vibrations of its own strings, but with those of the piano. When the violin is removed, the sound ceases; putting in its place a guitar, the music revives. For the violin and guitar we may substitute a plain wooden tray, which is also rendered musical. Here, finally, is a harp, against the sound-board of which the end of the deal rod is caused to press; every note of the piano is reproduced before you. . . .

"What a curious transference of action is here presented to the mind! At the command of the musician's will, the fingers strike the keys; the hammers strike the strings, by which the rude mechanical shock is converted into tremors. The vibrations are communicated to the sound-board of the piano. Upon that board rests the end of the deal rod, thipned off to a sharp edge to make it fit more easily between

the wires. Through the edge, and afterwards along the rod, are poured with unfailing precision the entangled pulsations produced by the shocks of those ten agile fingers. To the sound-board of the harp before you the rod faithfully delivers up the vibrations of which it is the vehicle. This second sound-board transfers the motion to the air, carving it and chasing it into forms so transcendently complicated that confusion alone could be anticipated from the shock and jostle of the sonorous waves. But the marvellous human ear accepts every feature of the motion, and all the strife and struggle and confusion melt finally into music upon the brain."

You will see that, according to Professor Tyndall, the conduction of sound is purely a mechanical matter—*motion*, nothing but *motion!* Before I comment in detail on the explanation given by the Professor of the conduction of sound from the piano through the long deal rod, let me give you, in support of the same motion theory, a few words from the writings of Mr. Sedley Taylor; and I want you to remember what he says (doubtless following Tyndall's lead) about an explosion of a powder magazine. This writer, in his "Sound and Music," remarks: "In every case, accessible to common observation, where sound passes from one point of space to another, it necessarily traverses *matter* either in a solid, liquid, or gaseous form. We may hence conjecture that the presence of a material medium of some kind is indispensable to the transmission of sound. . . .

"Having ascertained that a material medium in every case acts as the carrier of sound, we have next to examine in what manner it performs this function. The roughest observations suffice to put us on the right track in this enquiry, by pointing to a connection between sound and motion. *The passage, through the air, of sounds of very great intensity is accompanied by effects which prove the atmosphere to be in a state of violent commotion.* The explosion of a powder magazine is capable of shattering the windows of houses at several miles' distance. Sounds of moderate loudness, such as the rattle of carriage-wheels, the stamping of feet, the clapping of hands, are produced by movements of solid bodies which cannot take place without setting up a very perceptible agitation of the air. In the case of weaker sounds, the accompanying air-motion cannot, it is true, be ordinarily thus recognised; but, even here, a little attention will usually detect a certain amount of movement on the part of the sound-producing apparatus, which is probably capable of being communicated to the surrounding air. . . . These considerations raise a presumption that sound is *invariably associated with agitation of the conveying medium—that it is impossible to produce a sound without*

at the same time setting the medium in motion. If this should prove to be the case, there would be ground for the further conjecture that *motion of a material medium constitutes the mechanical impulse* which, falling on the ear, excites within it the *sensation we call sound.*"

I hope you quite understand all that Mr. Sedley Taylor desires to convey in this masterly piece of cautious writing. I must congratulate him on his consummate caution, which is a lesson to all acousticians; for did I not know to the contrary, I should, from the passage just quoted, imagine him not to be quite certain of the truth of the theory he teaches. (The italics are my own.)

You will allow that such expressions as: "We may hence conjecture"; "probably capable of"; "raise a presumption that"; and, "if this should prove to be the case, there would be ground for the further conjecture that," are not in the usual dogmatic style of the enthusiastic wave-theorists. Be this as it may, it is quite evident Mr. Taylor is at one with Professor Tyndall in the belief that sound is conducted alone by the *mechanical motion of the conveying medium.* This is amply proved by the following quotation from "Sound and Music": "Analogy, then, indicates that some purely *mechanical phenomena*, external to the ear, will prove to be *turned into the sensation we call Sound* by a process carried on within that organ and the brain, with which it is in direct communication. This *mechanical agency*, whatever may be its nature, is usually set going at a distance from the ear, and to reach it must traverse the intervening space."

This sentence is perfectly clear. We are assured by analogy that the "*sensation, we call Sound,*" is caused by "some purely *mechanical phenomena* external to the ear"; and, further, that "*this mechanical agency,*" set going at a distance, must traverse the conveying or conducting medium. It will be seen that the fundamental principles of the science have not advanced since quaint Mr. William Tansur, "Musico-Theorico," wrote in 1829. This worthy writes, in the true dogmatic style: "All sound is made by motion: and that motion is the verberation, or modulation of air. Sound is produced by a body striking against the air; and is grave or acute, in proportion to the force with which the air is struck, and the magnitude of the body that strikes against it. All sound is supported, and carried distant, by the medium or air, which is called the sphere of activity, the element of sound, so far as the medium passes, so far passes the motion with it; and when the motion ceases, then must the sound cease also. If it meets with any hindrance in the way which it passes, it strikes and shakes at every obstacle it meets, making echoes and sounds according to the nature of the obstacle. If it meets with no hindrance then it passes into

the sphere of the air or medium, cutting, dividing, or ploughing it, according to the force of the sonorous sounding-body moving in a certain degree of velocity or quickness. . . All sounds move in a trembling or vibrating motion."

Having thus clearly set before you the direct teaching of the wave-theorists on the subject of the conduction of sound in solids, liquids, and gases by mere "mechanical phenomena" or motions, you will be able to realise in your own minds the work—*mechanical work*, remember—the tiny watch-escapement and the slender piano-strings had to do in the experiments I have mentioned.

Now, let us consider for a moment the details of the piano experiment. You will picture to yourselves a grand piano-forte placed in an apartment, two stories below this, we may say at the distance of twenty-four feet. Resting on its sound-board is a pine rod, cut almost to a knife-edge so as to pass clear between the strings, and extending vertically through two floors until it shows its other end rising from this platform. The rod will, accordingly, be about twenty-three feet long. The rod being properly supported and insulated, as described by Professor Tyndall, everything is ready for the experiment in the conduction of sound. I place upon the end of the rod a violoncello to act as a receiver and resonance chamber; and, by an electric signal, I instruct the pianist to strike firmly a full "chord of the ninth," and to hold it. We shall suppose the following notes to be struck—8 ft. C, C, its octave, C, and B, d¹, e¹, and g¹, in all six notes sounding together. The piano is not heard, but you hear the chord distinctly, as if issuing from the violoncello. It is heard so distinctly that a musician would experience no difficulty in separating and naming the notes composing it; and should one of its notes be out of tune he could tell which note it was.

This is marvellous enough when we look upon sound as a natural force, akin to electricity; but the mind breaks down in despair in attempting to understand it as the result of *mechanical motion*. According to the motion or undulatory theory of sound, this is how it is done:—

The fingers strike the keys, and the hammers strike the strings, setting them swinging to and fro. The mechanical impulse which generates the "sensation" of sound in our brain originates solely in these vibrating strings. This mechanical motion has to be communicated to the sound-board; as Professor Tyndall says: "The amount of motion communicated by a vibrating string to the air is too small to be perceived as sound, even at a small distance from the string. When a broad surface vibrates in air, condensations and rarefactions are more readily formed than when the vibrating body is of small dimensions like a string. Hence, when

strings are employed as sources of musical sounds, they are associated with surfaces of larger area which take up their vibrations and transfer them to the surrounding air."

Now, as not even a wave-theorist can claim that it is the *air-waves* sent off from the string which set the sound-board into corresponding vibration, no channel of communication is left but the wooden bridge attached to the sound-board, and which terminates the vibrating length of the string. I leave all deep-thinking and mechanical minds to decide to what extent a vibrating piano-string could shake a large and firmly-stayed plank of wood like the sound-board of a grand piano. According to the wave theory, the said sound-board must be shaken sufficiently, with a uniform up-and-down motion, to generate, or send off from its surface, air-waves, formed of "condensations and rarefactions," of power and amplitude sufficient to fill an immense hall, and bend in and out ten thousand or more tympanic membranes, and land their cargo of sound in good condition in five thousand brains. This is a tough job for the almost infinitesimal *pulling* of a slender wire to do, which only swings in its centre about the thirty-second of an inch. Even if one can bring oneself to accept this very wonderful mechanical hypothesis, an awful difficulty presents itself the instant one contemplates what the shaky condition of the sound-board must be when the pianist strikes the chord of the ninth. Six sets of strings vibrate simultaneously, and pour their respective vibrations through the bridge into the expanse of the sound-board. Now, the sound-board has to move *up and down* 64 times a second, 128 times a second, 241·631 times a second, 287·350 times a second, 322·540 times a second, and 383·566 times a second, *all at the same instant*, and has to create air-waves of exactly the same numbers of vibrations, or condensations and rarefactions, in the same second. Gentlemen, I do not know how this problem in mechanics strikes your minds, but to my mind it is a monstrous impossibility and an insult to common sense.

But I have not yet done with this notable experiment. You know that the thinned end of the long pine rod rests upon the sound-board of the piano. Supposing this rod to be $1\frac{1}{2}$ -inch in diameter, the surface resting on the sound-board could not exceed $1\frac{1}{2}$ inch by about $\frac{3}{16}$ ths of an inch. Now, through this contact the sound-board has to send waves of some sort, having "condensations and rarefactions" of some sort, 64, 128, 241·631, 287·350, 322·540, and 383·566 times a second through the twenty-three feet of rod. The rod in turn has to set the body of the violoncello into the same six rates of vibration at the same instant ; and, lastly, the body of the violoncello has to vibrate, at these six different rates, so strongly as to send off in good order six systems of sound-waves of

sufficient force to fill every inch of air-space in the room, and shake in and out at six different rates at the same time every tympanic membrane present, and convey thereby exactly the same impressions to every brain. Of course, at this point the mathematician will press forward his "*algebraic sum*" of the six motions; but reason and common sense laugh at that impossible argument, for do we not hear in the chord every separate note of which it is composed; and can we not name the notes, and detect any one of them out of tune?

I admit the absolute result of this experiment is a marvellous instance of the simple and natural conduction of sound-force, yet our old friend the watch furnishes a still more wonderful instance.

If a watch is held against the end of a long baulk of pine, measuring many yards and weighing several tons, and an ear is placed against the other end, the ticks or sounds produced by the tiny escapement are distinctly heard. This is an instance of the conduction of sound-force which places sound almost on a level with electric-force: it is of necessity a proof of simple conduction according to the natural law, for it is absolutely childish to imagine for one instant that the ticking of the watch escapement is transmitted in accordance with the teaching of the undulatory theory of sound. According to Wertheim, sound is conducted in pine wood at the velocity of 10,900 feet in a second, along its fibre; and the wave theory assures us that it can only be conducted at this great velocity by means of waves throughout its molecular structure—waves having "condensations and rarefactions," and "amplitude of vibrating particles." This is the "slight yielding of their separate parts" which Mr. Sedley Taylor mentions in the following passage: "Though the Sound-impulse thus advances with a steady and very high velocity, the medium by which it is transmitted clearly does not share such a motion. Solid conductors of sound remain, on the whole, at rest during its passage, and a slight yielding of their separate parts is all that their constitution generally admits of

"The movement of the particles composing the Sound-conveying medium will be a kind examples of which are constantly presenting themselves, but without attracting an amount of attention at all commensurate with their interest and importance." Then this writer devotes some thirty pages of his "Sound and Music" to the careful explanation of wave-motion and to "the movement of the particles composing the Sound-conveying medium."

Speaking of the wave-theorists' explanation of the conduction of the watch ticks through the long pine log, Mr. J. P. Lukens says: "It would be a slander on children to call this childish; they are born with better judgment; it is

the machinations of the adult brain, stultified with learned ignorance."

I have merely touched upon the marvels of the natural conduction of sound-force by solid substances, and have simply sketched the most obvious impossibilities which attend the conduction of sound according to the wave theory. I must, however, leave this subject unfinished, and enter upon the concluding part of my present address. I shall leave the consideration of the conduction of sound-force in liquids until my next paper, and rest content, on the present occasion, to direct your attention to one of the great mistakes made by the professors of the wave theory of acoustics in connection with the conduction of sound in air. I shall, perhaps, be somewhat severe on this mistake, for it calls for severity on the part of every thinking and truth-loving mind.

You will remember my asking you to bear in mind what Mr. Sedley Taylor says about the explosion of a powder magazine, in his "Sound and Music"; but the passage may have faded from your memories, so I shall read it to you again. He remarks: "The passage, through the air, of sounds of very great intensity is accompanied by effects which prove the atmosphere to be in a state of violent commotion. The explosion of a powder magazine is capable of shattering the windows of houses at several miles' distance." Mr. Sedley Taylor, with his well-known observation and common sense cannot surely claim the devastating effects of an explosion of a powder-magazine as due to sound or sound-waves; nor can he be surprised if I assure him that the loudest sound ever produced by an explosion on the earth, or by Nature's electric artillery in the heavens, is incapable of shaking a cobweb which is not in perfect sympathy with it. He has, I presume, thoughtlessly followed Professor Tyndall, as many other scientists have done, and probably will do until the wave theory is consigned to the limbo of exploded hypotheses. Specially speaking of the diffraction of sound-waves round solid obstructions, Professor Tyndall writes as follows:—

"A sound-wave certainly bends thus round an obstacle, though as it diffuses itself in the air at the back of the obstacle it is enfeebled in power, the obstacle thus producing a partial shadow of the sound. . . . A striking example of this diffraction of a sonorous wave was exhibited at Erith after the tremendous explosion of a powder magazine which occurred there in 1864. The village of Erith was some miles distant from the magazine, but in nearly all cases the windows were shattered; and it was noticeable that the windows turned away from the origin of the explosion suffered almost as much as those which faced it. Lead sashes were employed in Erith Church, and these, being in

some degree flexible, enabled the windows to yield to pressure without much fracture of the glass. As the sound-wave reached the church it separated right and left, and, for a moment, the edifice was clasped by a girdle of intensely compressed air, every window in the church, front and back, being bent inwards."

In the article, in the "Encyclopædia Britannica," on Acoustics, by Professor Leslie, we find the following passage: "Thus the *noise* of the explosion of a powder-mill is heard and often *dreadfully felt* at a great distance all around the scene of the disaster."

Gentlemen, I have given you three quotations from great authorities on the science of acoustics. What do you think of them? Will you think I overstep the bounds of common sense if I say a schoolboy ought, if he is capable of putting two and two together, to laugh their teaching to scorn? Well, whatever may be your opinion on first thoughts, it is quite certain that until the appearance of Dr. Hall's startling book, in the year 1877, no one publicly questioned the said teaching. The passages quoted state, as clearly as their authors are capable of clearly stating anything, that it is *sound*, *noise*, or *sound-waves* which in great explosions of many tons of gunpowder cause the *fearful havoc* which invariably follows them. If such happened to be the true state of affairs, might we not well speak of *sound-force*? But I have seriously to ask these scientists: What becomes of the cubic acres, aye, cubic miles of heated gas which are in an instant generated and hurled with incalculable force into the surrounding atmosphere?

I have also to ask: Is this generation of gas and the fearful rush of compressed and driven air simply a *sound-wave*, as they seem to teach; and if so, does the *sound-wave* travel at the uniform velocity of sound in air?

Do they wish me to understand that it is the *sound* or *noise*, which is simply one of the effects of an explosion, that shatters windows, destroys buildings, and kills men and animals? If they do, I object to accept their view, and I laugh at such a monstrous absurdity.

To bring home to your minds somewhat more clearly the force of the argument now entered upon, let me give you the short report of a fearful dynamite explosion which took place in the United States on October 29, 1883:—

"A terrible disaster occurred near Brook's Tunnel, on the Baltimore and Ohio Railroad, yesterday morning at about 9 o'clock, resulting in the instant death of five men. The railroad company has been strengthening and widening the tunnel, and at some distance outside a magazine had been erected in which was stored 1,200 pounds of dynamite to be used for blasting. At about the hour named a freight train

had just passed through the tunnel, and was side-tracked to allow an overdue passenger train to pass. Four of the crew of the freight train walked back to the vicinity of the magazine, and were engaged in conversation with the watchman when the people living in the vicinity were startled by a terrible concussion. Houses for fifteen miles around were shaken to their foundations, and windows for a distance of seven miles were shattered. Horror-stricken, the people ran from their houses, and upon investigation it was found that the dynamite had exploded with fearful effect. Trees were uprooted, huge rocks were torn asunder, and telegraph poles for half a mile were prostrated. Nothing remained of the magazine, and the men who stood near it just before the explosion were missing. All must have been instantly killed. Portions of bodies, including legs, arms, hands, and heads, have been picked up half a mile distant, but so badly disfigured as to be unrecognisable. . . . The cause of the explosion is enveloped in mystery. . . . Not far from the scene a gun was found, and it is supposed that one of the victims discharged it, the concussion causing the dynamite to explode."

Commenting on this explosion Dr. Hall pithily remarks: "According to Professor Tyndall, and all the authorities on acoustics, the above-mentioned disastrous effects resulted from the *sound or noise* of the explosion. No mistake about this." One has only to refer to Professor Tyndall's description of the magazine explosion near the village of Erith, "to see that the death of these five men, torn to fragments, and the destruction of buildings, and the uprooting of trees, were simply the result of a *very loud noise or intense sound!* Shame to the vaunted scientific knowledge of the nineteenth century, as well as to the men who persist in teaching it to young men in our colleges, unwilling to acknowledge the error even after it has been pointed out and demonstrated. . . . It must not be supposed here, that Professor Tyndall is alone in being thus terribly misled by the wave theory. All writers who have exhaustively treated the subject, teach the same preposterous nonsense—namely, that a mere *noise* will destroy buildings and disintegrate men and animals, scattering their fragments over acres of ground."

It is not remarkable, gentlemen, that in the allusions made by the three great acousticians I have quoted, not one word is said or one hint made with respect to the instantaneous and irresistible injection of cubic acres or miles of heated gas into the atmosphere? I cannot for one moment doubt their knowledge of the immediate result of an explosion of gunpowder; but I do doubt their good faith towards their trusting students and readers, in suppressing all allusion to the true and only cause of damage done to buildings and injury to man.

You must not go away with the impression that I am unjust or too severe. I stick to truth myself, and hate above all things the half-truth, with something withheld, which so fatally misleads.

One more glance at the passages I have quoted. Professor Tyndall heads his section thus: "Diffraction of Sound: illustrations offered by great explosions." Then he says: "A striking example of this diffraction of a sonorous wave was exhibited at Erith after the tremendous explosion of a powder magazine." Then he adds: "As the sound-wave reached the church it separated right and left." Mr. Sedley Taylor says: "The passage through the air of sounds of very great intensity is accompanied by effects which prove the atmosphere to be in a state of violent commotion. The explosion of a powder magazine is capable of shattering the windows of houses at several miles' distance." Then Professor Leslie says: "Thus the *noise* of the explosion of a powder-mill is heard and often *dreadfully felt* at a great distance."

Not one word is said by one of these writers to convey the idea that *sound* and the great *aerial wave*, propelled with devastating force by the sudden addition of cubic acres of heated gas, are in any way distinct or different. Not a word is said about the true and sole cause of the vast atmospheric disturbance, whilst *sound* and *noise* are alone spoken of as the cause of injuries to buildings and the thing which is "*dreadfully felt*."

Gentlemen, at whatever risk to my reputation as a lecturer, I must be plain. It would be absurd of me to bring forward such would-be scientific teaching as this, and then gloss over its obvious absurdity. It should be, and eventually will be, deprecated by every sensible and thoughtful mind. Let us hope, at all events, if further works have to be written on the wave theory of acoustics, that it will not be found necessary to bolster up that motion theory by resorting to such ridiculous illustrations, such gratuitous confusion of ideas as results from the attempt to represent a simple puff of air to be sound, in such an experiment as that of the tube, books, and candle (alluded to in my first paper); or from the attempt to represent the fearful gas-driven rush of compressed air to be sound or a sonorous-wave; and the devastating effects of a dreadful gunpowder or dynamite explosion as the effects of sound or noise.

Alluding to the arguments of Professors Tyndall and Leslie, Dr. Hall remarks: "We have no doubt, if Professor Tyndall or Professor Leslie should fire off a musket and be kicked over by its recoil, they would seriously report that the '*noise*' of the gun did the business! Why not? Surely the kicking of the gun is caused by the instantaneously

generated gas, the very thing which also destroys buildings, and if this real cause (gas) is to be ignored in one case, and the result attributed to the 'noise,' it ought to be in the other. Again we repeat shame on such pretended science! Thank heaven, the light is beginning to dawn, and the fogs and mists of false teaching are beginning to disperse before the intensified rays of invincible truth. The fact that the five men were really torn to fragments by the enormous gas-wave instantaneously generated by the exploding dynamite, and that the sound of the explosion, *per se*, had nothing to do with it, is one of the simplest and most self-evident propositions in physics—one which no child ought to dispute for a moment."

I have tried my utmost to write a short paper for this evening, and failed. My subject is too vast and too important to be hurried over or lightly touched upon, and I ask your indulgence.

I shall now conclude by putting a few facts on record in your proceedings, which are not at present recorded in any of the European text-books on acoustics; and as I am very desirous of giving wave-theorists every chance of proving the teaching of the substantial theory wrong, I particularly recommend these facts to their careful consideration. Perhaps mathematicians may find some formulæ to refute them.

Firstly.—The *sound* or *noise* caused by an explosion of gunpowder or dynamite is absolutely distinct from, and, in its effects, independent of the *devastating air-wave* propelled by the gas generated by that explosion: and, accordingly, *sound, per se*, had nothing whatever to do with the shattering of the windows at Erith, nor was it a "*diffraction of sound*" which bent in the windows of Erith church. Again, this fact refutes the teaching of this sentence: "The passage, through the air, of *sounds* of very great intensity is accompanied by effects which prove the atmosphere to be in a state of violent commotion." Again, it condemns the dogmatic statement that "the *noise* of the explosion of a powder-mill is often dreadfully felt at a great distance."

Secondly.—The *sound* of an explosion travels at the natural and unvarying velocity of sound in gases and air at certain temperatures; whilst the velocity of the compressed air-wave caused by an explosion travels at a constantly varying velocity; the initial velocity being altogether due to the magnitude and conditions of the explosion and the nature of the explosive material.

Thirdly.—That at a short distance from the centre of the explosion the velocity of the generated gas is greater than that of sound; that farther away there is a point where both the velocity of the compressed air-wave and the natural velocity of sound are equal; that still farther away the natural velocity of sound considerably exceeds that of the slackening air-wave; and that at a greater distance still the sound continues travelling at its uniform velocity, whilst the air-wave is moving so slowly, and at a steadily decreasing rate, as to be inappreciable to our senses and altogether imperceptible in its effects.

Fourthly.—No sound produced either by natural or artificial means is capable of moving a suspended feather or even a broken cobweb which is not in vibrational sympathy with it. The loudest clap of thunder may fail to shake the windows of the house which the thunder-bolt rends from top to bottom.

Let the wave-theorist prove these four statements to be false or contrary to reason, if he can! If he cannot, let him remain silent in the presence of the substantialist who boldly affirms their truth.

DISCUSSION.

THE CHAIRMAN.—Ladies and gentlemen, I ask you to join with me in according a vote of thanks to Mr. Audsley. We owe him a debt of gratitude for the paper with which he has favoured us.

[The vote of thanks was passed unanimously.]

I was very much impressed by Mr. Audsley's remarks about the powder explosion. I cannot put my case so strongly as I am sure he would, but what I wish to observe is this: we suppose that agitation or production of corresponding sounds is produced by the travelling of air-waves, which put sympathetic bodies in motion. It is impossible to attribute such devastation to air-waves, because not one of these buildings would be in sympathy with the sounds transmitted. Therefore it is entirely due to other causes, and if other causes can produce those phenomena it is quite clear we need not look to the sound-waves as the action in cases of mere transmission of ordinary sound. I must say the case Mr. Audsley has placed before us of the walls through which all these things have to permeate before producing certain results is a very strong evidence to me of the soundness of the views he takes adverse to the wave theory doctrinists;

but I confess myself very little prepared indeed to enter into these matters, my part in life being more that of a practical musician than of a scientist. Nevertheless, I think it is well worthy of our attention to-day and that we should give some reason for the faith that is in us, and I hope that someone much more able than myself will deal with this matter. Mr. Audsley is not at all afraid of controversy in this matter, he courts it, he anxiously hopes some effort will be made to substantiate doctrines with which he is at variance in order that he may answer them, and that through the multitude of counsels we may arrive at truth and nothing but the truth.

Mr. HERMANN SMITH.—All that I can say is that I am not in any sense a supporter of the views Mr. Audsley is endeavouring to submit to the English public. I have not yet heard from him any theory which is really to replace the old wave theory, nor do I conceive that his arguments have in any sense shaken the old wave theory. Still, I am quite prepared to listen to all that he has to say, and I hope that some day we shall really have a new theory instead of the vague opposition which is given to the wave theory. I shall be very glad if any among the audience will state what their views are and if they can enlighten us as to what Mr. Audsley's views are.

Rev. C. R. TAYLOR.—I felt the same desire as the last speaker has expressed to know what the substantial theory is. I thought we were going to hear definitely some new theory in regard to sound, and unless I have not grasped or understood the lecturer, he seems to me to demolish to his own satisfaction the theory that we have known hitherto, but does not build up for us another. We want to know what his theory is before we can say very much. At the same time, I am glad to join in thanking him for his lecture.

Mr. E. F. JACQUES.—I sympathise with Mr. Taylor. I came here this evening hoping to receive some further instruction on the new theory. I read, with some care, Mr. Audsley's articles published in the *English Mechanic*, I was present at his lecture given before you last season, and I have read some definitions which have been given since; but I find myself in the same difficulty, that of completely failing to understand the "substantial" theory, and I submit that Mr. Audsley would do very well if he would try to supply some better definition than that which is printed in italics in the last volume of your "Proceedings." I think such a definition stands very much in the way of the new theory's acceptance by those who can think at all clearly, and who are not in the habit of using language without a meaning. I cannot conceive anything more absurd—and I have read it several times with care—than such a definition as this: "Sound is one

of the primordial forces of nature. It is a *substantial* force, or an *immaterial*, objective entity, governed by laws, and fixed immutably by the Great Architect of the Universe." Now I submit, ladies and gentlemen, and I submit to Mr. Audsley, that the three words "immaterial, objective, entity" have no meaning whatever. They are absolute "*bosh*," and the more you think of them the more confused you get. If the thing is "immaterial" it cannot be "substantial"; and obviously it cannot be an "entity." As to the word "objective," it does not tell one way or the other. All that we know about sound is *subjective*. Sound, *objectively*, is not sound; it is merely vibration; it only becomes sound when we think of it subjectively. At the same time, I must say that I have been very much impressed with Mr. Audsley's remarks this evening, as regards their destructive capacity. I think he has made out a very strong case indeed against the wave theory. I never was very much impressed with the strength of the wave theory myself; it never seemed to me to completely account for sound, and I am very glad Mr. Audsley has done what he has to try and demolish it. As Mr. Stephens very rightly said just now, he has completely proved the case as regards the powder explosion, that is as clear as possible, and if Mr. Audsley can only build up a theory as cleverly and as powerfully as he is pulling down the old one, I think it will be very useful indeed; but at present his destructive far exceeds his constructive power, and I think the constructive one is very much hindered by such definitions as have been put forward, I believe, by Dr. Hall. I think that Mr. Audsley (I do not know whether I have gathered that wrongly from his manner) is rather too much inclined to assume that because the wave theory is wrong (assuming now that it is so) therefore Dr. Hall's theory must necessarily be right. We must be careful to distinguish between the two things very carefully. He admits himself that he cannot tell what sound is, so that really we are no better off than we were before. At least, we had a theory about which there was some plausibility. Then with regard to the use of the word "force." Of course that is rather a dangerous subject to enter into, because it approaches the metaphysical side of the question. There are two meanings to the word "force." When we speak of the great "force" behind Nature, so to speak, by which many of us mean something approaching the higher conception of God, it must clearly be distinguished from such "forces" as we speak of under the names of electricity, heat, and so on. Force in its highest sense is not manifest to us at all. The only things manifested are the forces, and they are always manifested as due to some kind of matter. I think this must be very clearly kept in view. It is only when there is matter in some way

acting either at a distance or otherwise that we get what we call force in the ordinary sense. Now in Dr. Hall's definition "sound is one of the primordial forces of nature"—force is spoken of as if it were something behind phenomena, and which existed apart from phenomena. There is a great deal of muddled thinking in such a definition as that.

Mr. H. C. BANISTER.—I would only say, Mr. Chairman, that as regards such matters as the watch tick being heard through the brick wall, and so forth, the marvel is in the effect and the cause itself. *A fortiori* we should have pronounced such an effect from such condition impossible but we find the effect there, and it does not seem to me that marvel is removed whatever theory is adopted.

Mr. GILBERT WEBB.—Onething struck me in Mr. Audsley's remarks—viz., that sound is appreciated subjectively. A deaf man, although he cannot hear it, yet feels the vibrations it sets up; therefore if we all became deaf we should still have in this sense an appreciation of sound. Are not we rather quibbling over words? It seems to me we all admit that sound causes vibration, and that that vibration is molecular agitation. The wave-theorists maintain that such agitation causes waves of certain length; but those waves are not travelling bodies, they do not progress; vibration therefore must be a series of shocks communicated from particle to particle, as when a row of billiard balls is struck at one end. I take it that in the case of the log it is not supposed that the tick of a watch moves the log, but that the particles at one end being set in motion communicate agitation to those adjoining, and so the sound passes down the whole length, as in the case of the microphone, where sound, so to speak, is magnified. For myself, like most others, there is an immense deal in the wave theory that is most unsatisfactory, and I think we should all welcome any theory which explained the action of sound more simply.

Mr. BANISTER.—May I speak a second time with regard to the remark made about a deaf person? This is a fact in my own experience. When I was playing upon the piano-forte, a young lady, deaf and dumb, was delighted to have her elbows on the sounding-board of the instrument. She would listen, if I may use the term, during the whole time I played, with evident enjoyment, and it was a disappointment to her when I left off. There is just one other matter. I have heard no explanation that will bear upon the fact of the so-called sound-wave having been photographed and exhibited at the Conversazione of our own Society.

Mr. JACQUES.—I can corroborate Mr. Banister. About a year ago a man who was blind and stone deaf came to see me. While he was waiting in my room I thought I would make an experiment. I went to the piano, took a couple of

handfuls of notes and struck them suddenly and firmly. He instantly said: "Oh, that is a piano, isn't it?" Now the man had no means whatever of knowing there was a piano in the room, and had therefore simply felt the vibration, and he knew from experience that that was the kind of vibration that was produced by sound. I was not able to converse sufficiently with him to ask him how he recognised it was a different kind of shock from what would have been caused, for instance, by the falling of a chair. I do not lay great stress upon this, however, because I suppose Mr. Audsley does not dispute the fact that sound is accompanied by some vibrational disturbance.

Miss OLIVERIA PRESCOTT.—I have always understood that the sound-board did not vibrate, simply that it echoed or threw back the vibrations of the strings and so strengthened them. Of course the idea of such a heavy piece of wood firmly braced with iron bands, &c., vibrating does seem absurd, but I think the ordinary interpretation of it is that it does not itself vibrate, but simply by reflecting strengthens the sound by throwing it back.

The CHAIRMAN.—I have heard it said that deaf persons are able to hear upon the application of a tuning fork in vibration to the teeth. Mr. Audsley will perhaps deal with that question if it bears at all upon the subject.

Mr. JACQUES.—Mr. Audsley might help us if he would explain how it is that if we strike a tuning-fork and we put it over a jar or jug the column of air in this will largely increase the sound of the tuning-fork.

Mr. AUDSLEY.—I do not feel, Mr. Chairman, that I have a very arduous task presented to me in the present discussion. I fully expected I should have met with much keener opposition and much more severe questions to answer. Some of the questions, however, require longer answers than are possible to-night; for instance, Mr. Jacques' address touched upon a subject which I intend to treat in my next paper. I may remark that the said subject is so vast that it would be quite impossible to do more in a lecture of an hour and a half in duration than touch upon two or three of its more important aspects.

Mr. Chairman, you were perfectly correct in remarking that no sound, however loud, which has ever yet been produced by natural or artificial means, is capable of stirring a cobweb, or a suspended feather, which is not in perfect sympathy with that sound; and which, could its molecular structure be put into sympathetic vibration, would fail to produce a sound of the identical vibrational number or pitch. Unless such a condition of sympathetic vibration exists, there is no possibility of the sound moving a body such as a cobweb or a feather. Before the *sound* or *noise* of an explosion of

gunpowder could shake a house, a window, or anything else, it would be positively necessary for the house or the window to be in perfect sympathy with that sound. I feel that it was almost an insult to the common sense of my audience to have brought forward a refutation, at length, of Professor Tyndall's, Mr. Sedley Taylor's, and Professor Leslie's arguments connected with gunpowder explosions and sound-waves ; but the refutation of such absurd teachings is absolutely necessary for the destruction of the wave theory, and to make way for another theory of acoustics which will not demand the belief in or the acceptance of such ridiculous ideas. It would be useless for me to attempt to establish a new theory of sound before I showed the falsity and total inconsistency of the old theory. My first duty is to destroy, root and branch, the wave theory ; then, I think, it will be time to develop the new theory carefully upon a large and most careful examination of the observed and unvarying phenomena of sound production and propagation. To my mind, the substantial theory will be found consistent with and capable of explaining all such phenomena.

As I have said in a previous lecture, the substantial theory has to be proved ; but I submit that, until a still better one is forthcoming, it should be accepted as a reasonable and sensible theory to take the place of the present unreasonable and nonsensical wave theory. I hope, if the substantial theory is wrong, to see it refuted and abandoned. I seek for truth in science, and shall abandon the substantial theory, as I have abandoned the wave theory after many years of belief in it, so soon as it is proved false and contrary to reason and common sense. At present we have a most unsatisfactory state of things in the science of acoustics ; so let us have, at least, a common sense theory to start with, even if we cannot fully grasp all its conditions and bearings at once. I do not suppose any theory, however probable or self-evident it may be, can be completely formulated and developed by one mind, or even by a dozen minds. Dr. Hall has started the ball rolling ; I am endeavouring to give it a kick forward ; and cleverer men than I am will either kick it farther forward still, or do their best to stay its course. The authors of books on the wave theory will do their utmost to prevent its reaching the goal.

Mr. Hermann Smith does not appear to have read my previous paper, wherein I have endeavoured to explain briefly what the substantial theory is. We recognise, I think, that electricity is one of the forces of nature ; and that it is as substantial as anything in nature can be in its effects on matter. We accept magnetism and gravitation as forces of nature, for they also can do work, and move inert matter with their invisible hands. Such being the case, it is, at least,

reasonable that we should accept sound as a force of nature. Certainly not a single good reason can be advanced against its being so. It moves and affects objects and matter which are in sympathy with it. I had the pleasure of showing the members of your Society, on the occasion of my first lecture, the wonderful apparatus called the "Acoustical Turbine." I have the apparatus here to-night, and it will afford me much pleasure to show it in operation, under the influence of sound-force, if anyone would like to see it.

In replying to Mr. Hermann Smith I practically replied to the remarks made by Mr. Taylor. But again I may say, that when I feel that I have displaced the wave theory, or shaken its claims in the minds of thinking men, who are really open to conviction, it will be time for me to come forward with the substantial theory, without specially alluding to the wave theory. This I hope to do, and to clearly explain the leading phenomena of sound according to the new theory.

Mr. Jacques' question, or objection, calls for a somewhat lengthy treatment. I can see Mr. Jacques' difficulty, and I may tell him that many scientific men, like myself, have also, at the outset, experienced a similar difficulty in realising the definition of sound-force. But perhaps the passage which I shall now practically quote from my first paper will clear the way somewhat. Universal substance is assumed, in the very rationality of entitive existence, to involve *immaterial*, as well as *material* substances. Hence the idea of that grand classification which Dr. Hall, for the first time, sprang upon the scientific world—namely, of making two departments of the existing entities of the universe by dividing them into material and immaterial substances, placing all tangible and ponderable objects in the first division, and all the forces of nature in the second. This happy thought, though somewhat difficult to grasp at first, soon became familiar to the mind, brushing aside the whole difficulty involved in the idea of two actual substantial bodies occupying the same space at the same time, since now the most impervious steel can be wholly occupied, pervaded, and penetrated by the *substantial forces* of heat, magnetism, electricity, gravity, cohesion, and sound in every part and particle of the matter composing it, and at the same instant of time. Now, to my mind, there is no real difficulty in understanding and accepting all this. What is electricity? What is magnetism? Surely substantial forces, for they do substantial work on substantial objects. Magnetic-force can lift a piece of iron, which is a substantial, tangible, and ponderable thing; it passes its invisible, intangible, but surely substantial hand through a board or a plate of glass, and takes hold of a ponderable, visible, and tangible piece of iron or steel in true sympathy with it. As Mr. Jacques has properly said, force cannot be demonstrated or made evident,

except through its work or action on inert matter. But, be it remembered, inert matter will, in the natural order of things, remain for ever inert until some force is exerted upon it. I think that is perfectly clear ; at least, it is perfectly clear to my mind. Let me add, it is quite possible that in the formulating of a new theory there may be some words or expressions used which, in the course of its development and establishment, will be abandoned or modified in some way ; and it is equally possible that there may be some expressions used, in the explanation of a new theory, which may present difficulties to the mind until a key is furnished to unlock them. I hope Mr. Jacques will think this verbal difficulty over and suggest some better words to convey the idea intended by the expressions used by Dr. Hall and myself. I shall only be too glad if he will do so. I am not at all bumptious in this matter. I am, like all present, earnestly seeking after truth ; but I am free to admit that I am very emphatic in pointing out blunders and misrepresentations which are impeding the knowledge of the truth.

Now with regard to the deaf man and the piano—in replying to Mr. Jacques I reply to others. In my first paper I mentioned the instance of Beethoven, after he was deaf in the ordinary way, hearing the sounds of his piano by holding a stick in his teeth, the other end of which was pressed against the sound-board of the instrument. This and such like experiments are illustrations of simple conduction of sound-force, familiar to every experimenter in acoustics. The ticks of the watch heard through the long pine log is another and still more remarkable instance of the conduction of sound-force. When a person is deaf, in the usual way, the ends of the auditory nerves which are in the fabric of the ear are so injured that they can no longer act as sensitive conductors of sound-force from that organ ; but if one can get at those nerves higher up, or at the points where they approach the brain, and where they are still uninjured—by conduction through the bones and matter of the head—then the brain will receive and recognise the sound-force to a greater or lesser degree according to the mode used in conducting the sound to the bones of the head, the nature of the sound, and the condition of the auditory nerves. With respect to the deaf, and, I presume, blind man, who could tell a piano whilst standing some distance from it, I have not the slightest doubt he either felt the vibration caused by the blows of the hammers through the floor on which both he and the piano stood, or he experienced some peculiar sensation of sound through simple conduction. If you strike the keys with considerable force the blows the hammers give are sufficient to shake the entire fabric of the piano. The sound-board may be removed and the sound destroyed, but the

blows and their consequent vibrations will be almost the same to the said deaf man. Sound had nothing, in all probability, to do with this case; it was concussion and vibration resulting from severe blows.

Mr. JACQUES.—There was not a severe blow.

Mr. AUDSLEY.—You have greater power than you are aware of; but I do not desire for a moment to imply that you thump in playing the piano.

Now with regard to Mr. Banister's remark about the conduction of sound through a brick wall. I think I acknowledged that it was very wonderful; I was going to say almost more wonderful by natural conduction than it would be by some purely mechanical means if sufficient force were employed; but it is, after all, simply a matter of conduction, probably just at first difficult to understand and accept. We think nothing now-a-days of sending a telegraphic message from here to America; but supposing I had stood upon this platform one hundred years ago, and propounded the possibility of such a thing, would there have been any one of my audience, even had you all been present, who would not have laughed me to scorn? The marvels of conduction have to be faced every day in modern electrical science; and why should we look upon the conduction of the kindred force of sound as unreasonable and absurd? It is quite a natural and simple matter. All sound is, as I have said before, generated, or released as we at present term it, from the force-fountain of Nature, by mechanical means—that is, it is released by the molecular vibration of the sonorous body—but it is not propagated or conveyed by mechanical means, as taught by the wave-theory; it is, on the contrary, conducted in a continuous stream without vibration of any mechanical sort. The substantial theory clearly teaches that sound-force is released by vibration, but that it is not conducted by vibration of the conducting medium. I think it must be impossible for us to accept the teaching that the whole of the particles or molecules of the huge pine log are set in motion by the ticks of the watch. I unhesitatingly affirm that the molecules are not and can not be disturbed to the minute distance of one ten-thousandth of an inch from the point of contact with the watch-case. To my mind, it would be just as difficult for the watch-ticks to move all the molecules of the log as it would be for them to move the log bodily. And it is ridiculous to say that the log can ever accumulate power, for, as an inert piece of matter, it can never extend or multiply the motion imparted to it by any force. The ordinary laws of mechanics step in and put such an idea out of court. Could an inert body, set in motion by any force, add to or increase that force, we should very soon have the long-sought-for perpetual motion.

With regard to the telephone, I may say I have given the Chairman a paper containing a list of the subjects I propose treating in my next paper before this Association, and both the telephone and phonograph are there mentioned. I thought this was a desirable proceeding, for I knew several questions would be started in the discussion which I might find necessary to pass over to-night. The question respecting the telephone is a case in point. I wished to avoid any appearance of begging a question, so I previously announced the subjects for consideration in my next paper.

I am free to admit, Gentlemen, that the arguments based on the wonders of the telephone are amongst the strongest in favour of the wave-theory; but I shall shatter them just as I have shattered the others.

Miss Prescott has, I think, quite a misconception of the nature and offices of the piano sound-board. If the sound-board were merely a reflector of sound it would not require to be made of one special material; that is to say, if you put a polished plate of glass it would be an infinitely better reflector, or a polished plate of steel would be an infinitely better reflector; but in neither case would the sound of the piano strings be materially increased. The true reason why the pine sound-board so wonderfully increases the sounds of the vibrating strings, according to the substantial and common sense theory, is that the peculiar molecular structure of the sound-board produces a highly sensitive sonorous property; and that when it is set into sympathetic molecular vibrations by the action of the vibrating strings, conveyed to it through the bridges of the sound-board, it releases sound-force with great freedom, and by reason of its large area, or surface measurement, in great volume. Neither reflection nor surface segmental vibrations have anything to do with this augmentation of sound. The large surface of the sound-board allows the sound-force to freely radiate from it. Let me illustrate this law of radiation by reference to heat. Take a cubic inch of iron and make it red-hot and place it on the table. Very little heat will be radiated from it even to a short distance. But now have that cubic inch beaten or rolled into a plate one foot square, and make it red-hot and place it on the table. In this case an intense heat will be felt a considerable distance away. There is no more iron and there is no more heat in it, yet you feel its heat feet away, simply because there is a longer surface to radiate the heat. The radiation is much more rapid and much more effective.

If the value of a piano sound-board depended on reflecting power, or on surface segmental vibrations, as the wave-theorists maintain, we should find many woods which would act better than the soft pine which is invariably used. But other woods are rejected because their sonorous properties are

inferior, and because they do not release sound-force so freely or so copiously as the soft and comparatively inelastic pine does. Such being the case, I think we may safely conclude that there is something more than reflection or reflecting power required in the sound-board.

Mr. JACQUES.—Do not the wave-theorists explain that it is reflection?

Mr. AUDSLEY.—No; they explain the action of the sound-board to be a superficial segmental vibration, created by the segmental vibration of the string; and that, being so large in surface measurement, it is able to send off air-waves with sufficient amplitude and force to very sensibly affect the auditory nerve through the vibrations of the tympanic membrane. It is a rather unfortunate thing for the wave theory that it has to depend on tympanic vibration; for I can assure you it is by no means an easy thing to set this so-called drum-skin of the ear into vibration. Sound won't do it, and I am glad to say it has no necessity to do it.

In my next paper I propose to enter on the subject of resonance; to continue my remarks on the conduction of sound; to treat of the telephone and phonograph; and to discuss matters relating to the vibrations of strings and the office and nature of sound-boards. These and some minor matters will be sufficient for one paper, I think.

The CHAIRMAN.—At Mr. Audsley's request I have to announce that the syllabus of his next lecture will be: "Conduction of sound.—Vibrations of strings.—Helmholtz on the violin string criticised.—Resonance.—Organ pipes considered.—The siren.—Telephone and phonograph." It will be illustrated throughout by experiments.

FEBRUARY 10, 1891.

MAJOR CRAWFORD
IN THE CHAIR.

*THE RONDO FORM, AS IT IS FOUND IN THE
WORKS OF MOZART AND BEETHOVEN.*

By C. F. ABDY WILLIAMS, M.A., Mus. Bac., OXON.

SOME months ago, during a conversation on Musical Form, the remark was made to me that the Rondo had been rather scantily treated in theoretical works ; and that the portion of that great book on musical composition by Marx, which deals with this form, had never been translated into English. My friend went on to say, " Why should you not write a paper on the Rondo (taking Marx as your basis), and offer it to the Musical Association ? " Acting on this suggestion I proceeded to write the paper, which with much diffidence I now offer you ; and if it should give rise to a discussion in which further light may be thrown on the subject, I shall feel that it has not been written in vain.

The history of the gradual development of musical form out of the first gropings in the dark by our forefathers, has received an exhaustive treatment at the hands of Dr. Hubert Parry, in that article in Sir George Grove's Dictionary with which every musician is familiar. I have therefore chosen to confine my attention to the details of the Rondo, in its fully developed condition as we find it in the works of Mozart and Beethoven.

I have not taken Marx's book as the basis of my observations, for reasons which will appear later : I have merely endeavoured to trace out some of the varieties of treatment shown by these two composers in those movements which are expressly called Rondos, or which come into the same category : varieties which are due to the unerring instinct of the composers, in their sense of the balance and proportion of the keys and material suitable to each particular case.

No two Rondos are alike in all their details : it would be impossible to find a scheme or plan which would exactly fit any two of these movements. This is as it should be ; we

do not require mathematical precision in the construction of works of art; and yet the general idea of the Rondo—that is, the constant return of the principal subject in the principal key, surrounded by a limited number of related keys—would seem to necessitate a similarity of form in all the movements. I shall endeavour to show how these great masters have given infinite variety to this apparently rigid form by their treatment of its details.

The varieties of formal detail are rather more numerous in the Rondos of Mozart than in those of Beethoven. The latter seems to have found the form ready made, and to have merely used it as a framework on which to build his marvellous ideas; but he uses a wider range of keys than his predecessor; and by this and other well-known means, heightens the æsthetic interest.

The most usual arrangement of material and keys in the Rondo is, roughly, as follows: First there is a distinct subject in the principal key, ending with a full close in that key. Then there is a passage of modulation, leading to a second subject in the key of the dominant. This may, or may not, be followed by a concluding subject called by German writers "Schluss-satz." For convenience, I group all the material which is in the principal key under one head, and call it No. I., and all that which is in the dominant (including the so-called Schluss-satz) under a second head, and call it No. II. Thus far we have a first subject in the tonic, a second in the dominant, and a modulating passage between the two.

I. mod., II.

C, G.

In a Sonata movement there would now be a double bar, and the whole up to this point would be repeated.

In the Rondo, instead of its coming to a close at this point, there is another passage of modulation leading back to the principal key, and bringing in the first subject again. This usually ends in a full close, and there may or may not be a double-bar at this place.

The scheme is now I. mod., II. mod., I.

C, G, C.

One might say that almost the only difference, up to this point, between the kind of Rondo I am describing and the Sonata movement, is that the Sonata repeats the whole of its first part, while the Rondo only repeats the first portion of it. The first subject of a Rondo, however, is often more compact and complete in itself than that of a Sonata, but this is by no means invariably the case.

When a Rondo is in a minor key, the second subject will usually be in the relative major, as in a Sonata.

Next, one of two things happens. Either a new subject

appears in a new key or a thematic development of the material already at hand takes place, just as it would in a Sonata movement. I shall, for the purposes of this paper, consider the new subject, or its representative, the thematic development, as subject No. III.

I. mod., II. mod., I., III.

C, G, C, a.

This portion of the movement finishes by modulating back to the principal key, again introducing the first subject followed by the second subject, this time in the principal key, then there is a *Coda*, and the movement ends.

I., II., I., III., I., II., *Coda*.

C, G, C, a, C, C.

Thus we have the Sonata form in every respect, except in the particulars I have mentioned. Even in the Sonata, the development section is sometimes discarded in favour of a third subject in a new key. For instance, the *Finale* of Beethoven's first Sonata, in F minor, has this form; but it is, of course, very rare. This seems as near a general plan as can be made of the Rondos of Mozart and Beethoven. In the treatment of the different parts of the movements, a wonderful variety is shown by both our composers.

I am going to trespass on your patience for a short time while I endeavour to describe some few of these varieties of detail. To begin with the first subject. In the Rondo, just as in the Sonata, this has many forms. A common one in a short Rondo, is that of what Marx calls a period, of from eight to twenty bars, ending with a full close in the principal key. Examples of this form of first subject may be found in the works both of Mozart and Beethoven.

Or it may consist of two or more periods. Plenty of examples of this are to be found. I will mention three; and as I shall have occasion to refer to various movements, very rapidly one after the other, perhaps the simplest way of mentioning them will be to play the first few notes of each, in order to recall them to memory quickly.

In Mozart's Rondo in A minor, which commences thus—

Andante.

the first subject has the following form: There is a period of

eight bars, ending with a full close on the keynote ; then a period in the key of C of thirteen bars, ending with a full close in C ; then a bar of modulation leading to another period of eight bars in A minor. This closes the first subject, and the second follows in F, without a modulating passage.

My second example is the Rondo of a Trio in B flat, by Mozart ; it begins thus—

First, there is a period of eight bars, ending in B flat, and repeated. Then one of twelve bars in F, followed by a repetition of the first eight-bar period ; and these last twenty bars are also repeated.

My third example is the last movement of Beethoven's Sonata in E (Op. 90). The first subject of this is almost precisely similar in construction to the two preceding examples. It consists of three periods, the first and third being practically identical, and in the key of E, while the middle one goes into the key of B.

Beethoven was fond of extending the first subjects of his Rondos by great repetition. For instance, the Rondo of the Sonata in G (Op. 31) contains as its first subject merely two phrases of four bars each, which by means of different closes and different accompaniments make the subject thirty-two bars in length. The Rondo of the "Waldstein" Sonata shows this feature in a still higher degree. The first subject contains only one four-bar phrase, which by means of repetition and extended closes and cadenzas extends the subject to the length of sixty-one bars.

In Concertos the first subject, and indeed the other parts, are much extended by repetition, the orchestra repeating what the piano had said, or *vice versa*. In Mozart's D minor Concerto, the first subject of the Rondo—that is, the material in D minor—is extended by this means to seventy-one bars. Beethoven, in the *Finale* of his Rasoumowsky Quartet in E minor (Op. 59, No. 2), makes the first subject fifty-five bars long. He does not commence in the principal key, but has seven bars in C major ; in the ninth bar a full close in E minor, and the whole up to here is repeated. In the first fifty-five bars the material in C major occurs four

times, and four times again at the repetition of the first subject. Perhaps the reason there is so much of C major about the first subject in a movement nominally in E, is that Beethoven wished to write his first subject in the major mode; but having already used the tonic major so largely in the two preceding movements, this key would not strike the hearers with sufficient freshness, and he, therefore, chose another related key.

Before quitting the consideration of the first subject, I should wish to point out that this subject always ends with a full close in the principal key. I have only noticed one case in which it does not, which I shall mention later on as one of the deviations from the usual plan.

We now come to the modulating passage, which, as in the Sonata, exhibits several varieties of construction. Sometimes it consists of what looks as if it were going to be a new subject, with regular periods, but which eventually modulates to the key of the second subject; or it consists of merely transitory material; or it may be developed out of the first subject; and, lastly, it may even anticipate the second.

The last case is very rare; but a good example is in the *Finale* of Beethoven's string Quartet in F (Op. 18, No. 1). In this case, the chief motive of the second subject is anticipated on the extended close of seven bars, which precedes the real entry of the second subject, thus making it appear to enter in G instead of C.

Sometimes all, or nearly all, connecting passages are omitted, and double-bars divide the various subjects. The movement then takes a form very similar to that of a conjunction of two or more of what Marx calls Lied movements, as in the Minuet and Trio form; but in this case there is always an important *Coda* after the final repetition of the first subject. Examples are Mozart's "Rondo alla Turca" and Beethoven's "Rondo a Capriccioso" (Op. 129). In the Rondo of the "Waldstein" Sonata, the connecting passage does not modulate, but begins and ends in C. The second subject then bursts in without warning in A minor—and yet perhaps one should not say entirely without warning, for although there is no modulation, yet the triplets of the second subject are, as it were, prepared for by those of the connecting passage. The connecting passage is sometimes omitted in this place, and not in others. Sometimes it merely consists of a single bar. When this is the case there is usually a long passage of modulation after the second subject; but no general rule can be established. In Mozart's Rondo in A minor, the second subject enters in F without any connecting passage. It is about thirty bars long, corresponding in this respect with the first subject, and it is followed by twenty bars of

modulation, leading back to the re-entry of the first subject. The *Finale* of Beethoven's Sonata in G (Op. 79) has one bar of connection, and the first subject is divided from the second by double-bars. There is also in this case a longish connecting passage, between what one may consider the end of the second and the re-entry of the first subject.

We now come to the second subject. This often partakes of all the features of the second subject in a Sonata movement. It is usually, but not always in the key of the dominant or, when the movement is minor, it is in the relative major. Mozart usually follows this rule. He, however, places it in other keys when the first subject is long, and has any considerable portion in the key of the dominant. The dominant is then, as it were, used up, and would not be suitable for the second subject on that account. In the little Rondo in F—



the key of C is largely used in No. I., and therefore D minor is used for No. II., as follows—



The A minor Rondo gives a parallel case for the minor mode. We should expect the second subject to be in C, but it is in F, for C has been used for more than one-third of the first subject.

I have said that the second subject may have two distinct sub-divisions, the latter of which is called in Germany "Schluss-satz," and consists of entirely new and distinct material; cases both with and without this sub-division are so numerous that it is hardly necessary to quote any.

Subject No. II. is often not so decided in its tonality as No. I., and has transitory modulations. It, however, ends with a full close in its own principal key, and then there is a modulation back to the tonic for the re-entry of the first subject. The full close at the end of the second subject is almost invariable with Mozart. One of the few cases where it

is omitted, and a deceptive cadence takes its place, is in his Sonata in A minor, the *Finale* of which begins thus—



Beethoven seems indifferent as to the full close in this place, and either introduces it or allows the end of No. II. to flow on naturally without a break back to No. I. In his earlier works he always places his second subject in the key of the dominant, but later has a strong liking for the relative minor. Exceptions to both these keys occur. In the Rondo in A major without opus number which commences thus—



the second subject is in C—



—it comes to a full close in that key, and then there is a passage in A minor leading back to A major for the re-entry of No. I. In the Rondo of Op. 49, No. 1, the first subject is in G major and the second in G minor and B flat. In Mozart's D minor Concerto, the second subject of the Rondo has three sub-divisions. It commences with one in F minor and this is followed by two in F major. I may here mention two other cases where the second subject has three sub-divisions: that of Beethoven's Op. 13, and in the *Finale* of the eighth Symphony, No. II.

may be considered to be in three sub-divisions, the first of which is in A flat, the last two in C. Other forms of second subject exist. It is unnecessary to describe them all in detail.

Often with both our composers, No. II. has, instead of a concluding sub-division, a return to part of No. I. in a foreign key before the regular return; and in many cases the connecting passage is made up of motives from No. I. The *Finales* of Mozart's Trio in E flat, for violin, viola, and piano, and Beethoven's Sonata in B flat (Op. 22), are some amongst many instances of this kind of treatment. In several cases I have noticed that No. II. consists principally, if not wholly, of motives from No. I. This occurs in Mozart's Rondo in D—



where the second subject is—



In this Rondo not only does No. II. consist merely of No. I. transposed to the dominant and slightly varied, but the connecting passage between I. and II. is made up of the same material to a great extent. I shall have more to say about this movement later on. As a rule, there is a connecting passage between No. II. and the repetition of No. I.; either new matter or thematic work. I have already dwelt at some length on the nature of the first connecting passage, so that it is not necessary to enlarge upon this one.

A few words will suffice for the consideration of the repetition of No. I. If No. I is short, say twelve to twenty bars, and of single period form, it is usually entirely repeated. If it consists of two or three periods, in many cases only the first period is repeated; but there is no rule as to this. If it is very long the latter portion is invariably omitted here.

In Mozart's Trio in B flat, the first subject of the Rondo (which I have previously quoted) consists of three periods, with double bars and repetition signs. The whole is repeated in this place, but the double bars and repetition signs are omitted just as is done in the *da capo* of a Minuet and Trio. In his A minor Rondo only the first period is repeated. Often, especially with Beethoven, the effect of the repetition is enhanced by additional notes and an added beauty in the music in the way that great composers know how to do.

We have now to consider the third subject and its representative, the development section. At the end of the first repetition of No. I. there is sometimes a full close, a double-bar, and a change of key signature. Sometimes, in addition to this, there is a connecting passage between Nos. I. and III. Sometimes No. I. does not come to a full close at all, but breaks off into No. III., and it is hard to say where one ends and the other begins. This last treatment is shown in Mozart's Rondo in F, which commences thus—

Andante. tr

also in Beethoven's Sonata, *quasi una* Fantasia, in E flat (Op. 27), in the *Finale*. This subject at its first repetition does not come to a full close, but breaks off into G flat, in which key the development begins, which takes the place of the third subject.

I wish to spend a few minutes in discussing some of the features that for the purposes of this paper I have called the third subject. Up to this point we have had two very nearly related keys, and have had these thoroughly impressed on our minds. Now is the place for more movement, more excitement—a strong contrast to what has gone before. Subject No. III. enters, therefore, in a new and more distantly related key, and has almost invariably more motion, a larger number of notes in each bar than what has gone before. As a rule the same *tempo* is kept; but there are rare cases, where even that and the time-signature are changed for the sake of greater contrast. Moreover, as I have mentioned before, in place of a third subject in a new key, there is as often as not a development of the previous themes, and in consequence,

modulations through many keys, just as there is in the Sonata form in this place; and even when there is distinct new material, there is almost always some kind of thematic development at its close before the first subject re-enters. When this part of the movement consists of a new subject, and there is no thematic development at all, it is usually not very long; but when it consists entirely or partly of thematic work, it sometimes extends to a great length. For instance, in the *Finale* of Beethoven's first Quartet, it reaches the length of 136 bars, or more than a third of the whole movement.

The third subject, or its representative, does not, as a rule, conclude with a full close, although there are many cases of this. It generally leads back to the principal key, or the dominant pedal thereof, and prepares for the re-entry of the first subject. This brings us to the final portion of the movement. The general plan of this portion seems to be as I have represented it on the board. That is to say, No. I. followed by No. II., followed again by a portion of No. I. (never the whole), either together, with, or as a *Coda*. All this is in the principal key, as it would be in a Sonata movement. This portion of the movement is generally a good deal lengthened by various means, and there is almost invariably a short thematic development just before the *Coda*, or the final entry of No. I., if it takes place here. It is in the construction of this portion of the movement that Mozart shows rather more diversity of treatment than Beethoven; and he does it in two ways. Sometimes he brings in No. II. before No. I.; sometimes he breaks up Nos. I. and II., and their second parts come before their first. In his "Rondo en Polonaise," from a Sonata in D, No. II. comes before No. I. in this place, and he has many examples of this kind of treatment. In Beethoven's works I have only noticed one example. In the *Andante* of his Quartet in D (Op. 18), No. II. enters before No. I. The movement is in Rondo form, and after the development section which takes the place of No. III., No. II. enters in, and is followed by No. I.

There are several cases of splitting up the subjects, and re-distributing the pieces in Mozart's works. One example is in his Sonata in C, the Rondo of which commences—



In this case Nos. I. and II. consist each of two divisions; No. II. enters after No. III., then the first division of No. I., then a repetition of the second division of No. II., and finally the second division of No. I. Another case of this sort is in his D minor Concerto, and still another in the fine *Finale* of his Sonata for four hands, in F. I have not noticed any cases of this splitting up in Beethoven's works.

Both composers frequently omit No. II. altogether in this place. For instance, in the Rondo of Mozart's Violin Sonata in E flat, and in that of the "Waldstein" Sonata. Beethoven invariably, and Mozart sometimes, introduces a second thematic development just before the *Coda*. This is short, long, or very long. In Beethoven's Quintet for piano and wind, in E flat, he merely hints at it. In his E flat Concerto it is fifty bars long. In the eighth Symphony it is about 190 bars long. He often extends his *Codas* to a great length—probably the longest is in the Rondo of the "Waldstein" Sonata, where it extends to 147 bars.

I have now endeavoured to explain some of the details of what I have found to be the most usual construction in movements which are either called Rondo by their composers, or which are similar to these in formation. There is a little Rondo by Mozart, in C, which contains all the essential characteristics of that form in a nutshell. It is only eighty-one bars long, and yet it is absolutely complete in all its details. It begins thus—

Allegretto.



I should like to mention a few instances in which I have found deviations from what has appeared to me to be the general plan of Rondo movements :—

In Beethoven's Sonata in C (Op. 2), the first subject at its first appearance does not come to a full close as is the almost universal custom, but is carried on past the point where one would expect this full close, and leads straight into the second subject. It consists of three periods, the last of which leads without a close to the second subject, in G. This is the only case I have found of a first subject not coming to a full close.

In Mozart's Concerto in E flat, the third subject of the Rondo has a different time signature and different *tempo* from the rest of the movement. This is the only instance I have

noticed in his works—the movement is in six-eight time, *Allegro*, the third subject being in three-four time, *Andantino*.

Beethoven also has only one instance of this, as far as I have noticed—in his Rondo in G (Op. 51). The movement is *Andante*, two-four time, the third subject being *Allegretto*, six-eight, in E.

Mozart's Rondo in D—



and the Rondo from his Serenade Quartet in G—



are both in Sonata form. That is, there is no repetition of the first subject, where we should expect it after No. II. But both these movements come into the category of those Rondos in which the second subject is almost entirely made up of the same material as the first, and probably, there being so much recurrence of one principal subject, Mozart had no hesitation in naming the movements Rondo, owing to the Rondo feeling produced by this recurrence.

There is another Rondo in B flat, which is in Sonata form, but in this case the second subject has no connection with the first with regard to its material. I gather from Köchel that Mozart did not call it a Rondo. It begins thus—



In Köchel's catalogue it is described as follows: "First movement of a Sonata for Piano." Only 91 of the 148 bars are by Mozart, the rest are by Abbé Stadler, and it is published by André as "Rondo Allegro."

There are cases in which the third subject is omitted altogether, and its place is not taken by any thematic development. Examples are Mozart's "Rondo alla Turca" and his "Rondo en Polonaise."

The descriptions of the Rondo form in theoretical works are many and various. For instance, Marx divides the Rondo into five species, and in this he is followed by some other writers. His first Rondo consists of a principal subject, which I will call No. I., followed by what he calls a Gang, and this is followed by a repetition of No. I., and a *Coda*.

This form would appear thus: I., G., I., *Coda*.

For the word Gang I have not yet found a satisfactory English equivalent. Perhaps someone may presently be able to suggest one.

Of the Rondo form No. I., Marx gives no example from the works of the great masters. In the appendix of his book he gives this scheme as an enlargement of the first Rondo form: I., G, I., G, I., and gives as examples the first movement of Beethoven's Sonata in F (Op. 54). His second Rondo form has, instead of the Gang, a regular second subject, and is on this plan—

I., II., I., *Coda*.
C, F, C.

He says that the only difference between this and the Minuet and Trio form is, that in the Rondo the materials are more closely connected by their substance or the similarity of expression than in the Minuet and Trio, and also that in the Rondo there may be exterior connecting passages. As an example of the second Rondo form he gives this movement of Mozart—



and shows that there is an internal connection, because the motive contained in the first four notes—



occurs again as the first four notes of the second subject, which is a new Lied in F minor. He then goes on to say that the second subject may commence as a Lied and conclude as a Gang. The enlargement of this form is—

I., II., I., G, I., *Coda*,

for which, as an example, he gives the *Largo* from Beethoven's Sonata in A (Op. 2). Its second subject is in B minor, and ends with a Gang—



This is followed by a repetition of No. I.; and this again by a Gang—



Then there is a third entry of No. I. and a *Coda*. Marx considers that the first two are the smaller Rondo forms, and says that they mostly occur in slow movements. The next three he calls the greater Rondo forms. The third Rondo form consists of

I., II., I., III., I., *Coda*.

You will observe that the second subject only occurs once. Marx quotes Dussek's "La Consolation" and the Rondo of the "Waldstein," as examples. The fourth has as its plan—

I., II., I., III., I., II. (I., *Coda*).

This is the same as the third, with the exception that the second subject is repeated. Marx gives as examples the *Finales* of Beethoven's Funeral March Sonata and his Sonata in A (Op. 2).

The fifth Rondo form is merely the Sonata form, with a new subject in the place of the thematic development. Its scheme is—

I., II., III., I., II., *Coda*.

You will observe that the first subject is not repeated between the second and third. An example of this will be found in the *Finale* of Beethoven's first Sonata. Marx says that these last two Rondo forms are very closely allied to the Sonata form. Later on, he speaks of mixed forms, and among them the "Sonatenartige Rondo," which may be rendered in English by "Rondo of Sonata character." In this case the third subject is represented by the thematic development, hence its Sonata character. I have already alluded to this variety of Rondo. I was taught in Germany to analyse Rondos on the basis of these five, or, rather, six forms; but I often found myself very much mixed as to which of them many Rondo movements belonged, and I do

not think they can be really necessary for purposes of analysis.

As to the views of other writers, Herr Jadassohn, in a little book published at Leipzig in 1885, distinguishes between two Rondo forms. The first *without*, and the second *with*, an alternative subject. In the first—that is, the Rondo without an alternative subject—the materials between the principal subject and its repetition are unessential parts of the movement, and are, therefore, not repeated. He gives as examples the Rondos of Beethoven, Op. 10, No. 3, and that of Op. 28, and he shows that in the first-mentioned example, although the principal subject occurs five times, none of the material which divides the repetitions is repeated. In explanation of this five-fold occurrence of the principal subject, I ought to mention that Jadassohn counts as one of the repetitions, the few bars of it, which are quoted in F., during one of the connecting passages. In the second example I think Jadassohn has made a mistake, for the second subject is distinctly repeated in the ordinary course. A third example, Op. 31, No. 1, which he gives, is much more to the point, for the second subject in this case is not repeated. His second Rondo form is that which has an alternative subject. One of the examples he gives is the *Finale* of Beethoven's Sonata in A (Op. 2, No. 7), of which his alternative subject is what I have called the third subject, and he shows that this subject, being an essential part of the movement, is hinted at, in what I have called the second development, just before the *Coda*.

In a book by Skuhersky, of Prague, published in 1879, the author gives five different forms, and then adds two more, which he says Marx gives; but he cannot agree with him in this subtlety and theoretical hair-splitting, although he pays a warm tribute to the value of his works as a whole.

Lobe seems to hit the mark, when he says that the Rondo form differs from that of the Sonata merely by the repetition of the principal subject at the end of the first part of the movement, and the omission of the repetition signs at the double-bar; but he says nothing about the third subject, which is so common in Rondos and so rare in Sonatas.

Since writing this paper my attention has been drawn to Mr. Banister's lectures on Musical Analysis, in which he gives such clear and concise descriptions of musical forms. He distinguishes between movements of development and movements of episode, and says that where there is more than one episode, and therefore at least two returns to the subject, the episodical movement is called a Rondo.

In conclusion, I may say that later composers have made other variations in the form of the Rondo. For instance, Mr. Corder remarks, in his article in Grove's Dictionary, that

Chopin often omits the third subject and the first repetition of the first subject in his Rondos, and the piece is therefore on the plan of the French Overture. Mendelssohn, in the *Finale* of his G minor Concerto, places his second subject in the same key as the first. Brahms, in the Rondo of his Serenade in D, for orchestra, at the end of the third subject brings in his second before the first, as Mozart has done in so many cases; and in his G minor Quartet for piano and strings the same treatment is shown. The *Finale* of Brahms's second Symphony hints at the Rondo form, but the composer only quotes the first four bars of his first subject at its first repetition, and then, by the cleverest possible contrivance, leads into the development section.

DISCUSSION.

THE CHAIRMAN.—The paper we have just listened to will, I have no doubt, draw attention to many valuable considerations, especially when there is a tendency now-a-days to disregard musical form altogether. Before we go any further, however, I think a hearty vote of thanks is due to Mr. Williams for his excellent paper, after which I shall call upon any member present to let us have the advantage of any observations upon the subject.

A hearty vote of thanks was unanimously accorded the lecturer.

Miss OLIVERIA PRESCOTT.—There is one thing rather confusing about Mr. Williams's paper. A good many of the different Rondo forms he has obtained from German books seem to me simply Sonatas with little variations. I think if we could get hold of the first principle, which I think Mr. Williams quoted from Marx, that the Rondo really is a more continuous form derived from the alternations of the minuet, and the alternative minuet, we should get at the pith of the matter. You want the repetition of the first subject, or else you lose the Rondo. When you finish with an episode or second subject you lose the character of the Rondo, and get back to the character of the Sonata. There is a very simple little example of the Rondo in the song, "Lascia ch' io pianga." Of course, interpolations and connecting links do not make any difference to the variations or outgrowths one way or the other. Then there is the valuable nature of the episode or second subject. Sometimes its form is complete; sometimes incomplete. I suppose that is what you meant by the Gang, that the second subject was incomplete?

Mr. WILLIAMS.—That is what Marx means by it.

Miss PRESCOTT.—I should have thought it simpler to say that that is another form of treating the episode.

Mr. WEBB.—I do not think that the Rondo has been developed out of the Sonata. I believe it to be older than the Sonata form. It seems to me that the original Rondo form was simply a chant, with a chorus taken up at certain intervals, the sort of thing that you hear at country fairs. Still that may or may not be so. I don't like the sound of the word Gang. The word "link" would be, perhaps, more expressive, and seems to me more graceful than Gang.

Mr. BARRY.—I think the word Gang implies a transition from the first to the second subject. You find it in Mozart's works, where that operation hardly amounts to a second; but if you take Beethoven's Symphony "Eroica" you may say that there is no Gang there at all.

Mr. WILLIAMS.—You would not call the development section a Gang. I should call that "Durch-fuehrung." Splitting up a symphonic movement into three sections could hardly be called a Gang. The first subject of a Sonata may be a Gang.

Mr. BARRY.—I should only call that a Gang which lies between the two principal subjects; the nature of the development, you may say, is the Gang towards the recapitulation.

Mr. WILLIAMS.—Dr. Hubert Parry instances a passage, gradually moving up and down, where a mass of harmony goes with it, without coming to a full close; that would be called a Gang.

Mr. WEBB.—Where would you place the Gang?

Mr. WILLIAMS.—In the development.

Mr. WEBB.—I should call it a link.

Mr. WILLIAMS.—It does not necessarily come between any two subjects.

Miss PRESCOTT.—He uses it for the kind of work rather than for the position?

Mr. WILLIAMS.—Yes, so I have always understood.

Mr. WEBB.—What would you call that portion which comes in the Sonata between the first and second subjects?

Mr. WILLIAMS.—I should call that the "Zwischen-satz."

Mr. BARRY.—Then you say that Gang denotes anything which is not the subject?

The CHAIRMAN.—In old French poetry there was a form, which I believe had rules and laws for its structure, called a rondeau. If anyone knows the rules for the structure of that form of lyric, perhaps it might throw some light on the structure of the musical Rondo.

Mr. BARRY.—That was the origin of the whole thing. All that we have heard to-night is only an evolution from the French poem. I have always understood that the original musical form called Rondo was taken from the French poem

of the same name. It consisted of double stanzas of four lines each. Then you had your second four lines, and then the first four lines were repeated after every stanza. It always finished up with the first four.

Mr. WEBB.—The Rondo form is of special interest because, it seems to me, you should look for the development of it in the future form of music. A good deal of very modern music comes practically to that. A certain phrase recurs at certain intervals, serving, as it were, to give coherence to bind the composition together.

Mr. BARRY.—I may say that Marx was considerably chaffed about the five forms of Rondos.

Mr. WILLIAMS.—And yet he was followed in this view by a good many writers.

Mr. BARRY.—Yes; but he also had many opponents, who would not swallow his ideas, and I do not see why we should either.

Mr. WEBB.—There is a book, which only recently came under my notice. It is a book, translated by Mr. Cornell, and published by Messrs. Schirmer, of New York, and is an admirable text book on form. It contains about fifty-six chapters, and goes into the subject most thoroughly. Dr. Bridge spoke most highly of it. From what I have seen of it, it should prove of great value to students, and, in fact, to anyone taking an interest in musical matters.

Mr. WILLIAMS.—I think that book is by Büssler. He follows Marx throughout, only expresses himself more briefly. You may read Marx in that book. I used it at Leipzig, but have discarded it since making my own investigations.

Mr. WEBB.—The title of it is: "Theory and Practice of Musical Form."

Mr. WILLIAMS.—The history of the Rondo and the derivation of the word having already been so ably treated by Dr. Hubert Parry and others, I did not think it necessary to allude to the subject. As to the connection of the Rondo with the Sonata, I take it that it is virtually the same thing as the Sonata, with this one exception, that the first subject is repeated after the second; that is a reminiscence of the old Rondo.

MARCH 10, 1891.

W. H. CUMMINGS, Esq., VICE-PRESIDENT,
IN THE CHAIR.

THE FOUNDATIONS OF NATIONAL MUSIC.

By F. GILBERT WEBB.

THERE are musicians who hold that what are termed *National* characteristics in music are due solely to the peculiarities of the languages, instruments, and scales used in different parts of the world, and that therefore the style and characteristic phrases of a national music are *not* the outcome of the character and peculiarities of a nation. They tell us that the deeper feelings of mankind are alike all the world over, and that consequently the peculiarities of national music are only *national* in the narrow and superficial sense of the word, and are therefore unworthy of adoption by composers of distinction. It will be my endeavour to show, however, that the many distinct peculiarities found in the music of various nations have a deeper significance than is commonly supposed. Whilst of course the same emotions are common to all mankind, some nations, owing to their surroundings and vicissitudes, experience certain emotions more frequently than others, and such emotions finally leave their permanent imprints on the whole nation and form what is called a national character. I need hardly say that, viewed from this standpoint, the subject is a very comprehensive one. It embraces the physical and mental peculiarities which distinguish the different races of mankind; the history of the sub-division of races; the resultant character and temperaments produced by the mixture of races; their gradual formation into nations; the alterations in language consequent on its corruption and development; and the effect of climate on religion, mode of thought, customs, and institutions. Obviously I can but touch on these points, but I trust with sufficient clearness to show their relative importance. As my subject is somewhat complex, I should like first to explain what I mean by the terms "race," "nation," and "character."

"Race," according to Professor Huxley, "is the name of a sub-division of one of those groups of living things which are

called ‘species’ in the technical language of zoology and botany; and the term connotes the possession of characters, distinct from those of the other members of the species, which have a strong tendency to appear in the progeny of all members of the races. Such race-characters may be either bodily or mental.” Thus we may call mankind a *species* of animal, and the Indian of different *race* to the Englishman. By “nation,” I mean a number of people having certain things in common, such as language, one form of government, &c. By “character,” I mean the presence of certain peculiarities of temperament seen in the art productions and physical actions of the majority of a nation. The expression of this “character” in the music of a nation is seen in the constant recurrence either of certain figures or groups of notes similarly accented, or in the repetition of certain scale notes. You will gather from this that I am more concerned with the repetition of certain musical figures in national melodies than with national melodies in their entirety. It is scarcely necessary to remark, except for the sake of completeness in my argument, that *no national melody*, that is, a melody which has become truly popular, and been handed down by successive generations, remains long in the form in which it left the brain of its composer. Like the piece of rock which falls from the sea cliff, it is moulded and shaped by the forces with which it comes in contact until generally little remains of its first form. Such is the history of every national tune. So great indeed are the changes which a national melody undergoes, that Grimm says: “A national song composes itself”; and Carl Engel, in his “History of National Music,” writes: “The people collectively may be considered the actual composers of national tunes. A short melody extemporized in a moment of extraordinary emotion is, if impressive, soon taken up by others, further diffused, and traditionally preserved. In the course of time it generally undergoes some remarkable modifications—a process of composition—until it has attained a general favourable acceptance by the nation.”

Now, if these changes are analysed, they will be found to consist of modifications of accent, and of metrical and melodic details, the result being the rejection of superfluous notes, the strengthening of the weak phrases, and the general condensation into a more compact whole of which the parts are more evenly balanced than originally. My inquiry deals of course with the causes to which these results are due.

The characteristic figures found in all music may be broadly divided into three varieties—viz., figures in which dotted notes occur; figures of three notes variously accented played in the time of two; and phrases not distinguished by these peculiarities but possessing wider intervals and flowing

character. As far as my researches extend, each of the above characteristics is traceable to different races or fusions of races. I do not affirm that no instance of the characteristics of the music of one race or fusion of races will ever be found in the music of another (for I hope to be able to show that each of these characteristics is expressive of emotions common to all mankind), but simply that the peculiarities I have mentioned are, broadly speaking, more pronounced and permanent in some bodies of men than others.

Before proceeding farther, it will be well for me to glance at some of the theories concerning the early inhabitants of Europe. In the consideration of this part of my subject I shall leave out the negro race, and the savage tribes found in various parts of the world, and confine myself to European racial developments. The subject is very complex, and difficult to deal with lucidly in a portion of a lecture, especially as there are now several theories more or less contradictory to each other. Modern ethnologists have, however, grouped European mankind into three divisions, respectively termed Aryan, Semitic, and Turanian, and agree that it is by the Aryan division that Europe has been chiefly peopled. Next in importance, as having exerted great influence on our development, come the Semitic division, to whom the Hebrews, Phœnicians, and Arabians belong. It is a peculiarity of the Semitic races that of old they kept much closer together than the Aryans, remained much more in the same locality (chiefly in South-western Asia), and occupied a much smaller portion of the world than the other great races of mankind. The third great division is the Turanian, which, according to some authorities, may be briefly described as including all whose radical differences of language prevent them from being included in the Aryan or Semitic divisions. The Turanians are now chiefly represented by the Chinese. The term Turanian has also been applied to all those tribes which inhabited Europe previous to some supposed great Aryan invasion or migration. Thus the Licilians, Pelasgians, Iberians, Ligurians, Aquitanians, and Silures, various peoples mentioned by early writers, are by some called Turanians. The same theorists describe three great Aryan invasions of Europe from Asia previous to written history; the first invasion producing the mixed people subsequently known as Kelts; the second resulting in another mixture, having a larger Aryan element, afterwards styled the Teutonic; and a third invasion, or revolt of the old Turanian element, which produced the so-called Slavonic people. There is very much here which on examination proves unsatisfactory, but with which you are doubtless acquainted. I will therefore briefly remind you of the most recent theory concerning the early populations of Europe—viz., that in the so-called

neolithic stage of civilization of mankind, Europe was peopled by two chief races, who from the marked difference in the relative length and breadth of their skulls, Professor Huxley calls respectively the long-headed and broad-headed man. The former apparently occupied at some pre-historic period the lowlands verging on the North Sea and the Baltic, while the latter were spread along the shores of the Mediterranean and central European highlands. The meeting and intermixture of these two types, and the incursions of the Tartars, a Turanian tribe, have resulted in the following types, existent to-day: 1. Fair long-heads, of tall stature, found in Scandinavia, North Germany, and parts of the British Isles. 2. Brown broad-heads, of short stature, found in central France, the central European highlands, and Piedmont. (These would seem to represent the two pure races before any mixture took place). 3. Mongoloid (*i.e.*, oblique-eyed) brown broad-heads, of short stature; found in Arctic and Eastern Europe and Central Asia. 4. Brown long-heads, of short stature, present in the western part of the British Isles and of France, Spain, and South Italy. There are, I need scarcely add, also found many gradations between these four classes, which indicate the various further intermixtures which have taken place. The two great divisions of fair long-headed and brown broad-headed men were also it seems originally distinguished by radical difference of language. That of the long-headed is styled Aryan; that of the broad-headed, non-Aryan. You are doubtless aware of these differences, and that the non-Aryan language is still spoken by certain of the broad-headed people known as the Fins and Laps in the North, and Basques, descendants of the Iberians, who inhabit the Pyrenees. One of the characteristics of the tall, fair long-headed man seems to have been his superiority in physical strength to the short, broad-headed man, whom he appears to have conquered and absorbed whenever any difference of opinion arose between them concerning the occupation of certain favoured tracts of land. Thus the broad-headed man was continually being driven out into odd corners of the globe, and often very uncomfortable quarters; and apparently it was the continual pressure southwards of these powerful northern long-heads which caused the migrations of the broad-heads into the southern parts of England and Ireland from Spain. The evidences of these early migrations are too numerous to give in detail, but I should like to refer to a few. Tacitus mentions that the Silures (who, it will be remembered, were broad-headed people) and other tribes came originally from Spain and settled in the parts above-mentioned. Irish histories and traditions, from their being so permeated with fiction, can scarcely be relied on as authorities, but such as may be

believed show us that the first inhabitants of Ireland came from Spain, and certainly that important branch of them, the Scots. The traditions and histories of Spain also coincide with the Irish on this point, as do also the English. Strabo notices the personal resemblance of the Aquitani to the people of Spain, and Tacitus for a similar reason judged the Silures of Wales to have been of Spanish origin. Whether these early settlers in England and Ireland were originally Iberians is difficult to determine, but it is a remarkable fact that it is from the North, where these people settled, that the English folk-song has chiefly come, and that wherever they went they seem to have carried the harp. One of the first results of the fusion of the long-headed and broad-headed man would seem to have been the production of a people subsequently called the "Kelts." These were in turn attacked and driven out by fresh inroads southwards and westwards of Aryans, or long-headed people ; and the result of their intermixture with those they conquered apparently produced the people now commonly called Teutons. With these we are more immediately concerned, for they are the forefathers of the Germans, Danes, Swedes, Norwegians, and ourselves. As men multiplied, the struggle for the more climatically favoured portions of Europe was intensified, and the physically weaker were driven out. Those who went northward became hardy and enduring, whilst those who settled in the South became enervated, and, ultimately, the prey of fresh inroads of northern men, when the process was renewed. But most remarkable is the influence which climate had on mental development. As men went westward and northward, clothing became of greater necessity ; houses also, which had to be more solid in structure to resist cold, wind, and rain, thus calling forth the inventive faculties. Their builders would spend a greater or smaller part of their lives in them in proportion to the relative length of the winter and summer. The man of the South would require less food, and that of a nature more easily procurable than the men of the West and North. The latter would crave more for meat to sustain the warmth of the body and resist the cold and damp, while a supply of grain could only be insured by the exercise of much fore-thought. Most customs have their sources in agriculture. That of the southern man, from the rapid and continual growth of vegetation, keeps him constantly employed out of doors ; that of the northern man, with its long periods of rest, induces habits of meditation and the cultivation of social instincts. The result of these influences on the development of temperament is most clearly seen in the myths and religious faiths of the various parts of Europe. Northern mythology is the impersonation of the visible workings of physical Nature. The storms, the floods,

the budding forth of spring were to the old Norsemen miraculous, stupendous, divine. They could not account for these things, but they could not deny their existence and influence. They, who had conquered through the might of their greater physical strength, were brought face to face with manifestation of a power before which they were helpless. And thus, confined in their huts the long, dark, weary winter nights, talking with hushed and awed voices as terrific storms raged without, was born the series of "Yötuns," gigantic demons whose mission and pleasure was to destroy. Even their good gods, such as Balder, the White god, the Sun, were often angry. Thus Donnor or Thor, the god of summer warmth, was, when angry, heard in the thunder. The black clouds were the knitting of his brows, the thunderbolt was the flinging of his mighty hammer; the noise, the rattle of his chariot wheels; the storm-blasts his wrathful breathing in his beard. The childlike mind of early man could only grasp the unseen by a system of personifications, and as nature smiled or frowned upon his efforts, his religion was one of terror or joy. Thus, after a few generations, the northman is seen striving to propitiate his gods, awestruck in the gloom of dark forests; while the southern man is worshipping his deities in beautiful temples with song, music, and dancing. Hence the sects formed in the North have never held their ground in the South. The one reasons from the heart to the object, the other from the object to the heart. The religion of the northern man is one of the spirit, which regards all that appeals to the senses with suspicion, while the religion of the southern man is one of the senses; he will have nothing that is ugly, nothing that is hopeless; and he transforms eternal punishment into a transitory state of purification. In a word, the faith of the North is *subjective*, that of the South *objective*.

I have dwelt at this length on the influence of climate on religion because the *character of a man's real faith in the unseen biases his life-work*, and especially the spirit of his musical productions. This is noticeable, for instance, in the mysticism of Gounod, the voluptuousness of Verdi, and the intellectuality of Bach and Brahms. In the times of written history we find the same mighty influence of climate still exerting its power, and every creative artist who distinguishes between the faculty of *thinking* and *feeling* will appreciate the value of visiting those lands where imagination is stimulated by the senses—*i.e.*, by objects of beauty.

In order to show how the musical figures of certain nations have been developed, it will be necessary to briefly glance at some important events in written European history. It may be roughly divided into three periods—viz., the anti-Christian period, and the periods before and since the Reformation.

We all know how the Roman Empire rose and fell. One of the most dangerous enemies of the Romans was the different German or long-headed tribes, who, although constantly driven back, returned again and again, and always with greater power and success. The most powerful of these were a people originally called "Goths." In the fifth century came the devastating invasion of the Huns, under Attila, who was defeated by the united action of the European races at the battle of Châlons in 451. This was the final struggle for supremacy between the Aryans and Turanians. After this there followed a long period of struggles between the European peoples with which you are all familiar. While these upheavals were taking place on the Continent, a similar kind of intermixture on a smaller scale was taking place in England. We have seen how the south and south-western parts were first peopled by early European tribes through Spain, that as these went northward and eastward they were driven back by the Kelts, who landed on the South and East coasts. Then, in 55, came the Romans, who drove the Kelts up northward. When the Roman power grew weaker, in the fourth century, the northern Kelts, many of whom, as in Scotland, had never been conquered, returned southward; at the same time tribes from the Teutonic stock began to invade the East coasts, first among them being the Saxons. So long as the Roman troops remained these were kept in check; but when the Romans were withdrawn in 410, the invasions were renewed with greater success, especially by the Angles (from whom of course we derive our national name), Saxons, and Jutes. These were joined by other Teutonic tribes and speedily formed one people. These Low-Dutch tribes had no sympathy with Roman customs or religion, nor with the Kelts whom they conquered in all parts, except Scotland and Wales. They brought their own language and religion and kept it, not becoming Christians for about 150 years. I may mention here that the Druids would seem to have come with the non-Aryans, and to be of Eastern origin. Thus it is not until the end of the fifth century that the foundation of the English nation was fairly laid; the elements of which may be said to have been three—*i.e.*, Teutonic with a small percentage of Keltic and a still smaller remnant of non-Aryan lingering in the south-west, as in Cornwall. Scotland at this period would seem to have been almost wholly Keltic, with a small percentage of the original non-Aryan inhabitants; Wales, probably equal parts of both stocks; Ireland, in the South and South-west, almost wholly non-Aryan, the North and North-east containing a few Keltic tribes.

The next great influence exercised over Europe, after the settlements of the Teutons, was Semitic. The duration of

the Mahomedan power extended from about 650 to the end of the tenth century. Briefly, the dream of the Moors was to conquer Europe by marching along the African side of the Mediterranean and occupy Spain, while other hosts proceeded along the European side. The first half of this plan was successfully carried out, and nearly nine centuries elapsed before the Moors were finally driven out of Spain.

The History of Spain seems to be an epitome of that of Europe: first the Iberians or non-Aryan tribes, then the inflow of the Aryan, the resultant Kelti-berians, then the Roman rule; in 404 the invasions of the Teutons under the name of Visigoths, who finally obtained the ascendancy and ruled for two and a half centuries, during which time the struggle between Catholic Christianity and that form of it arising from the heresy of Arius waged fiercely; then, in 711, the great battle, fought a few miles from Cadiz, which terminated the rule of the Visigoths and marked the commencement of Moorish power, which was only finally crushed in 1492. The evidences of the science and skill of these conquerors exist to this day; and, considering how far their civilization was in advance of that of Europe at this period, it is surprising that they did not exert a still greater influence than they did. The advance of the Arabs in civilization was much more rapid than any other people of whom we have distinct records. Before the rise of Mahomed they were chiefly remarkable for fiery energy, wild imaginativeness, and a delight in speculations on the vast, sublime, and mystic. In 641 the Caliph Omar, one of the conquering successors of Mahomed, in the magnificent contempt for literature of a great uneducated soul, burnt the famous Alexandrian Library; while, from 786 to 833, under the reigns of Caliph Haroun al Raschid, so celebrated in the "Arabian Nights," and his son and successor, Almamaun, Bagdad became the resort of poets, philosophers, and mathematicians from every country and of every creed. Agents in Armenia, Syria, and Egypt were ordered to collect the most important books that could be discovered, and within a short time the genius of the Arab had embraced the whole then known range of human culture. This knowledge was poured into Europe, for the most part through Spain during its occupancy by the Moors. They gave us astronomy, our system of numeral notation and algebra, chemistry, a new style of architecture, maintained by many to be the origin of the Gothic; the principle of rhyme in verse, the mariner's compass, the pendulum, and that spirit of chivalrous devotion to women which bore such golden fruit in the time of the troubadours and is now regarded as the hall-mark of the European gentleman.

I now come to the more musical portion of my subject—viz., the rise of the so-called Schools of Music, the char-

acteristics of which, however, are so well known that there is no need for me to dwell on them at any length. The first, the Parisian, we know very little about; indeed, it is but recently that it has received the honour of classification. The complaint of John Diaconus, the biographer of St. Gregory, to the effect that the Gauls and Alemanni were the least fitted to understand and execute the Gregorian chant in its purity because they would always *mix it up with some of their own*, plainly indicates that these people already had a music, some idea of the characteristics of which may be gathered from the following remark by the same worthy writer: "Their rough voices, roaring like thunder, are not capable of soft modulation; for their throats, hardened by drink, cannot execute with flexibility what a tender melody requires. Indeed, their voices give out tones similar to the rumbling of a baggage-wagon rolling down from a height." Diaconus was evidently prejudiced with regard to the musical capabilities of the ancient Gauls, but it must be admitted his remarks admirably suggest the powerful and turbulent Teuton warrior of those times. The next School which came into prominence was the Dutch or Netherland School, whose exponents carried the art of counterpoint to a pitch of perfection, or, as many would say, to a degree of artificiality which has never been surpassed. Then followed the Italian School, which originated everything and perfected nothing; then the German, who developed what the Italians had invented; and finally, I trust I shall not be considered too sanguine, the English School of to-day, which I believe has a great future before it. The rise of all these schools can be traced to rebellion against forms, which, though at first they charmed by their novelty or beauty, became at length by constant use so wearisome as to excite hostility. The true genius does not seek to produce mere novel effects, but to secure a more truthful expression of his feelings. So long as any form is held in slight or secondary esteem it helps him to obtain this result; but from the moment that any form becomes perfect in popular estimation and music is judged merely by its obedience to a certain fashionable design, the composer is hampered by that which should be his most helpful ally, and the ire of the expressionist is excited. *One* has to give way, and it invariably is *not* the composer.

One of the most important influences which has contributed to the progress of music is folk-song. Folk-song may fairly claim to be the vital principle in the music of all nations; it is the spirit without which the most elaborate works are but mere lifeless monuments of human industry and misdirected energy. All the greatest composers have drawn their inspirations from these national songs. I do not of course mean that the greatest works are those which

contain the actual melodies of folk-songs, though this is often the case; but I do say that the greatest works breathe the same spirit as that which produced the folk-song. The old troubadours and minstrels numbered in their ranks many a Beethoven and Schumann. What a splendid troubadour Schubert would have made! The minstrels had little to guide them, and the higher ideals of Christianity were unknown or but faintly conceived by them; but they were surely as great in their day as their more enlightened descendants, and we owe very much to their *naïve* directness of expression.

Now, the origin of all folk-music is the endeavour to perpetuate by forcible and picturesque means the glories of love and war, and the several results which flow from these two propensities of mankind. In a people's love-making we get closer to their individuality than in their warfare. When two armies meet in battle they fight from mutual fear of each other, an emotion which is very rarely present in the more sentimental relationships; hence, in the one case, a man acts from a sense of nationality, from a desire to sustain the reputation of his forefathers and secure the esteem of his fellow countrymen; he becomes consequently a unit amidst a multitude; and hence in the war songs of a nation we more often find the characteristics of race and the peculiarities of a people's nationality than in their love songs, in which the individual character has freer play. Thus it is in a nation's war songs, or, as we now more euphemistically but less truthfully term them, "National Anthems," that we shall find the musical figures which point to the original racial fusions.

I have already referred to the three great branches into which these characteristic figures may be broadly divided—viz., the dotted note, the triplet, and the series of notes of equal value. The first of these is of two kinds—*i.e.*, the trochaeus and iambus. The former  commonly known as the "Scotch snap," is the musical expression of great muscular strength allied with highly-developed nervous force—I mean rapidity of nervous action, or transmission of thought to the muscular mechanism, which proceeds from great determination of mind and quick decision. It is the language of relentless resolution, of a mind which once fixed on the acquisition of an object cares not what consequences may result to itself or others so long as the end in view is attained. These, I need hardly say, are the chief elements which form the characters of successful warriors and conquerors, such as the Kelts. Associated with gesture, it is the expression of the sudden grip followed by the relentless and dogged grasp, resulting from a quick muscular contraction caused by a sudden and determinative decision. As time, progress, and civilization increased, it came to represent a lighter phase, of

petulant, wayward character; but it still reflects its origin—determinative selfishness. The well-known Scotch song, " 'Twas within a mile of Edinboro' Town," is a good example of what I mean. The other position in which the accent is not on the short note but the longer one, the iambus, implies a less impulsive action but a greater staying power—determinative action proceeding from previous careful consideration—it is the expression of conviction based on experience and calculation. It is sometimes met with in connection with the other form—*i.e.*, the Scotch snap form; and it is curious to notice in such instances how it enforces and gives weight to the more impulsive utterances of its companion. As might be imagined from the characteristics of those peoples in which the Teutonic element predominates, the trochaeus is chiefly found in German music, of which the following, which dates from the beginning of this century, is a good example:—

"DES DEUTSCHEN VATERLAND."

Was ist des Deutschen Va - ter - land,.. Ist's
 Preussenland? ist's Schwabenland? ist's, wo am Rhein die
 Re - be glüht? ist's, wo am Welt die Mö - vegieht? etc.

It may be advanced that these figures are merely the result of the different accents of the languages, but I submit that this is only begging the question, since the accent of a language is largely influenced by the temperament of the speakers. An impulsive man when excited clips his words and strives to lay the strongest accent on the first part of his words or sentences; he wants, so to speak, to knock you down first and argue with you afterwards, while the less impulsive but equally determined man chooses his words that they may have a *crescendo* effect, and he prefers to knock you down as a clincher to his argument—it is just the difference between

and Now there is very little evidence to show that the Kelt was a singing man. The Scotch snap is an instrumental accent and not one which accommodates itself

to the voice. Doubtless he had his songs or chants; it is difficult to imagine any people who had experienced moments of elation not giving expression to such feelings by some specific means of articulation and gesture, and the less mental control a man has, the less capability he possesses to keep the muscular system at rest in moments of excitement; but the songs produced under such circumstances, or to stimulate such fierce emotions, emanate from a very different temperament from that which may be called musical—*i.e.*, contemplative, introspective, sympathetic—in a word, poetical. On the other hand, there is abundant evidence, by the discovered specimens of his craftsmanship, to testify that these latter qualities were possessed in more or less degree by the broad-headed brown man. His remains are chiefly found in South Italy, Spain, the western part of France, and the British Isles, and I need hardly say it is from these parts and those adjacent that have been derived our chief sources of music. This broad-headed brown man I more especially regard as the originator of music, because the remnants of his music that have come down to us distinctly show that he was a singing man. Not only has he handed down the love of the harp, in all those countries where he has exercised the greatest influence, but the figures in his tunes, such as triplets and irregular turns, with which he delights to grace his melodies, are peculiarly grateful to the voice.

We now know the order in which successive generations of mankind have developed musical instruments—viz., first there is the percussive stage, the reign of time beating and rhythmical embroideries; second, the pipe stage; and lastly, the string stage. Now the Scotch have been peculiarly faithful to the pipe, while the Welsh have been equally true to the harp. I do not suggest, however, that the one nationality is generations behind the other in civilization; at any rate, it will be better for me to leave that question to be argued out by respective national representatives. I am, therefore, of Mr. Rowbotham's opinion, that the reason of this preference of a national instrument is that the origin of the music of the one is the dance, while that of the other is the chant or song. The origin of the dance is the endeavour to more forcibly convey by the help of gesture the agitated state of the mind. We see this in the skipping step of the delighted child and the war dance of the savage; and this again accords with the traditional warlike character of the Kelts. The sound too of high-pitched pipe notes combined with, or rather accompanied by, a bass several octaves below, as in the bagpipe, has a remarkable irritating and blood-thirsty effect on the human mind; the Turkish Janizary bands employed the same means to excite the savage instincts of the soldiers while fighting, and it is from them that we get

the modern abomination, the drum and fife band. It may be that the brown broad-headed man was earlier in Europe than the fair long-headed man, but supposing they were contemporaneous it would seem to follow from their early mutual positions—the former along the Mediterranean and the latter up northwards—that the brown man would develop more rapidly than his fellow fair man. Moreover, the broad-headed man was obviously more favourably situated to receive the products of eastern civilization, and the history of plastic art shows how greatly he possessed the faculties of assimilation and development. Thus the sharply accented short note would seem to come from the energetic North man—*i.e.*, the long-headed fair man, and to have had its origin in the war-dance, while the more graceful and flowing triplet would appear to have come from the southern broad-headed man. Of course these people intermixed and thus brought about various gradations of these two broad rhythmical divisions.

The third division to which I referred—viz., that undistinguished by the prevalence of either of the preceding characteristic figures, and most remarkable for notes of equal value and larger intervals, is chiefly exemplified in the English style of music. I use the term, English style, advisedly, because I think no one who has studied the history of music in England will deny that we have as distinctive a style of music as any other country, but that we have ignored it because until lately we thought slightlying of the art, and in our brutal strength associated it with effeminacy. But an English style of music has existed for centuries nevertheless, and it is just as characteristic of our national temperament as that of any other nation. What is the character of the majority of ordinary Englishmen? A well balanced mind which regards everything in an intensely practical light and which submits everything to the question : "What good will that do to my pecuniary or social position?" We hate display. All extravagance of language, dress, and gesture; we look upon the impulsive man with suspicion and upon the exaggerator with disgust, and regard enthusiasm as dangerous; we fear to let ourselves "go" lest we should excite ridicule; in a word, we lack "passion." On the other hand, we are magnanimous and chivalrous, whether the object be worthy or no; emotional on social subjects, patriotic, and home-loving. What should be the music of such a people? Just what it is; good, honest, bold, straightforward strains, rich in melody, and breathing strong, healthy, human affection or simple-hearted gaiety, but innocent alike of exaggerated sentimentality, intellectual subtleties, or maddening mysticism.

It is true there is no striving after high ideals in all this,

and little endeavour to express the infinite unutterable yearnings of the spirit which sometimes seem to find expression in music. What an Englishman feels most deeply he seldom speaks of, and when he does make up his mind to musically come out of his shell, he too often resorts to German models to convey his thoughts. Considering, however, that until lately we have sent all our best musical youth to Germany, this can only be regarded as a natural consequence. But I do most strongly maintain that though for a period we, in common with other nations, have been surpassed by the Germans, that we have nothing to be ashamed of in our national music.

Another fact which has influenced our music is that we are a comparatively slow-speaking people. You will not find this exemplified in the city man who lives, so to speak, with electrical devices stimulating and absorbing his brains all day, but in those men who form the majority of our nation. Not only do these speak slowly, but they barbarously shorten and condense their words so as to convey their meaning with the slightest amount of muscular action. One result of this is that the words and syllables get a more uniform stress laid on them, especially to be remarked in the speech of the English peasant. This, and the great importance which the English country ballad-singer seems to attach to making every word distinctly heard, and the carelessness so frequently displayed with regard to correct accentuation by English people generally, so apparent in their hymn-singing, goes far to account for the recurrence of so many notes of equal value, which forms one of the chief characteristics of old English music, and indeed of all those people in whom the Teutonic element predominates. The difference between the music of the latter and that born of the broad-headed southern man is strikingly shown in the following examples of ancient folk-song. The first comes from Spain where, perhaps, the Iberian element is still the greatest, and the second from the North of England, where it has been mixed with successive incursions of long-headed northern men :—

"MALAGUEÑA."

Allegretto.

p Diez a - ños des-pues de muer-to . . .

A musical score consisting of six staves of music. The top staff uses a treble clef and common time, with dynamic markings *pp* and a crescendo. The lyrics are "Diez a -ños des-pues de muerto . . ." The second staff continues in the same key and time signature, with dynamic *pp*. The lyrics are "y de... gru - sa - nos-ro -". The third staff begins with a treble clef and common time, with dynamic *pp*. The lyrics are "- i - do . . . Le - tre - ros". The fourth staff continues in common time, with dynamic *pp*. The lyrics are "ten-dran mis hue sos . . . di -". The fifth staff begins with a treble clef and common time, with dynamic *pp*. The lyrics are "- cien - do que te han que -ri - do. . .". The sixth staff concludes in common time, with dynamic *pp*. The lyrics are "Diez a -ños des-pues de muer-to. . .". The score includes various musical markings such as triplets, eighth-note patterns, and dynamic changes.

“BLOW THE WINDS, I-HO.”

A musical score for a single melody. The music is in common time, treble clef, and consists of four staves of music. The lyrics are integrated into the music, appearing below each staff. The first staff contains the first two lines of the lyrics. The second staff contains the third line. The third staff contains the fourth line. The fourth staff concludes with the fifth line.

There was a shep-herd's son, He kept sheep on yon-der
 hill; He laid his pipe and his crook aside, And there he slept his fill.
 And blow the winds, I - ho, I - ho! Sing, blow the winds, I - ho!
 Clear a - way the morn-ing dew, And blow the winds, I - ho.

Perhaps the most striking example of the influence on music of the mixture of races and languages is that of the Slavs, who attract so much attention in the present day. As the ideas of many concerning the origin of these people would seem to be as mixed as the racial composition of the people themselves, I think I cannot do better than read you what Professor Huxley has recently written on the question : “The blonde broad-heads of Poland and West Russia form part of a people who, when they first made their appearance in history, occupied the marshy plains imperfectly drained by the Vistula on the West, the Duna on the North, and the Dnieper and Bug on the South. They were known to their neighbours as Wends, and among themselves as Serbs and Slavs. The Slavonic languages spoken by these people are said to be most closely allied to that of the Lithuanians, who lay upon their northern border. The Slavs resemble the South Germans in the predominance of broad-heads among them, while stature and complexion vary from the, often tall, blondes who prevail in Poland and West Russia to the, often short, brunettes common elsewhere. There is certainly nothing in the history of the Slav people to interfere with the supposition that, from very early times, they have been a mixed race, for their country lies between that of the tall blonde long-heads on the North, that of the short brunette broad-heads of the European type on the West, and that of the short brunette broad-heads of the Asiatic type on the East ; and, throughout their history, they have either thrust themselves among their neighbours or have been overrun and trampled down by them. Gauls and Goths have traversed their country on their way to the East and South ;

Finn.-Tartaric people, on their way to the West, have not only done the like, but have held them in subjection for centuries. . . . Thus it is hardly possible that fewer than three races should have contributed to the formation of the Slavonic people—namely, the blonde long-heads, the European brunette broad-heads, and the Asiatic brunette broad-heads." If we had to imagine what would be the characteristics of the music of such a people, we might reasonably suppose it would represent "something of everything," and this is very much what has been produced. The Slavonic music may be termed an example of musical interference. It is as though all existent figures and fragments of various forms had been thrown into a kaleidoscope which revolved in the brain of the Slavonic composer. Wild, weird, witchlike melodies, broken rhythms and bold harmonic transitions are its prevailing characteristics. It is the language of unstable impulsive passion, deep and fierce, of inexpressible tenderness and unbridled fury; in a word, the very antithesis of English.

The gipsies, who are said to have migrated from Hindostan about the fourteenth century, settled largely in Hungary, where about 500 years previously the Magyars, a Turanian people, had become dominant lords of the soil, thus infusing another element into the racial hotch-potch. For a long period they found a refuge in the Carpathian Mountains and in the vast plains of the lowlands, but about a hundred years ago they found they could win the favour of the ruling people by playing the Hungarian national music, which they did so successfully as to ultimately become the representative musicians of the country and give rise to the so-called "Hungarian style." No greater instance of the striking talent of the gipsy to adapt himself to circumstances can be found. All he did, however, for Hungarian music was to corrupt it by adding a series of those embroideries so dear to the Indian mind. The following example is a striking instance of the gipsy method of procedure:—

Original Melody.

K

Gipsy Version.



This sounds very like the bombastic and inappropriate utterances of the facile but inartistic virtuoso, and it is remarkable, as all of the same class, for absence of intellectuality. At the same time there is much of very great interest to the musical student in the so-called Hungarian music, for it is essentially the music of improvisation. Its characteristics are the product of generations of players and singers who have studied the art of extemporaneous composition, and whose chief endeavours have been to find out the most forcible manner to express their emotions. Hence from the warm temperament of the people and their habits, customs, and history, this music more than that of any other nation may be said to depict the phases of passion unbridled by social conventionalities and old-world musical forms, and consequently it often reflects the state of mind which mistakes madness for strength and incoherence for sublimity. It is interesting also to notice that the gipsy has exerted the greatest influence on the music of those countries in which the predominant racial elements are Turanian. Thus the gipsy influence on German and English music may be said to be *nil*, while it is distinctly traceable in Spanish music and, as we have seen, has, in contact with the music of Slavonic people, produced a school of music which is regarded as representative of a great race. This would seem to afford singular evidence of former racial affinity before the times of written history.

Another cause for the extreme variableness of accent in Hungarian music arises from the numerous and delicate shades of emphasis of the language; consequently, while regularity of rhythm distinguishes the music of other nations, irregularity may be said to characterise that of the Hungarian ; thus we find the following rhythms in consecutive bars :—



They have also the following scale, which, from its including the augmented sixth, gives great wealth of harmony:—



Springing from a similar fusion of races, the music of the Polish nation possesses many peculiarities in common with that of the Hungarian. Ancient Polish folk-music claims to be the oldest in Europe. As this, however, from the unhappy history of the people, largely consists of religious songs, in which consequently the emotions of the singer are more or less kept in control, they present comparatively few characteristics indicative of national temperament. It is chiefly in their dances that we meet with peculiarities of figure and rhythm which point to the Slavonic origin of the people; but the music of the Pole is more polished and courtly than that of the Hungarian. The real "Dumka," or "song of sorrow," is built on the following scale—



and faithfully echoes the despair of a subjugated people; while the well-known rhythms of the "Oberek," "Mazurka," and "Polonaise" contain in their varied accents the evidence of the energetic and enthusiastic temperament of the nation from whence they sprung.

There is no need to dwell on the more recent development of nationality in music. If such a thing may be said to have commenced at all, we may perhaps date its origin from the great French and German writers of the eighteenth century. It was of course strongly fostered by the revolt against authority of all kinds, which is known to us as the French Revolution, by the patriotic feelings engendered everywhere by the fear of Napoleon, by the interest aroused by the struggles of Hungary and Poland, and the national character of the music of two at least of the most prominent musicians of the romantic epoch—Chopin and Liszt.

DISCUSSION.

THE CHAIRMAN.—I think we should all feel deeply indebted to Mr. Webb for having taken so much pains to prepare a paper which, to most of us, at all events, comes with an air of novelty. I confess, for my own part, that I am not a "racing" man, and, therefore, I am not prepared to say very much on the subject of the various sub-divisions of races, which Mr. Webb has unfolded to us in such very lucid style. I hope, however, to have the opportunity of reading his paper when in print, and then I shall be able to give it my best consideration, as you will all, doubtless, do. I would remark as to the melodies given us by historians such as Coussemaker and others, that I listen to them with a good deal of, I would almost say, disbelief; at any rate, I feel rather dubious about them. In the first place, Coussemaker was not a man who was great at deciphering music; and then I am rather suspicious about melodies such as we have heard to-night, supposed to have been commenced in the ninth century, for we must remember that mankind has always had presumably much the same sort of voice that it has now—the same compass that it has now. In these extracts, historians invariably give a very few notes, say three or four. I, myself, cannot believe that they are true representations of people's song. If we take people's song, as we generally find it developed—take any people you like—one of the characteristics of national song is the extreme compass of the melody. It is always very high and very low, or nearly always; and that is one of the reasons why it is difficult to sing such people's songs. I think it quite possible that melodies which range within a limited compass take their origin in Church teaching. I always have it in my mind, without having given the matter any very serious thought, that national music must have had a fight of it, and that where the Church prevailed national music had to take a back seat. The Church in its early fight with the people's song did harm, I believe. Good music, in my opinion, comes from the heathens and not from the Church. I mention this because Coussemaker and others pretend their ability to decipher music from hieroglyphics. I have tried it myself, and do not believe it can be satisfactorily accomplished. People may get an approximation, but in their endeavour to make a tune they are not over particular as to a note or two, and, therefore, examples such as those given by Coussemaker must be taken *cum grano salis*. The deductions we have had from Mr. Webb as to the development of Slavonic song, and of our own national song, I thought extremely interesting. I do believe that we have

a national song, and I think that it only needs thought and culture for us to make something of it. It is a curious thing that we find in Scotland they have that "Snap," though we do not find it in Ireland, where there is a kindred people to a certain extent; and there is no trace of it at all in the Celts in Wales. My first duty is to say on your behalf how interested we have been in the paper read to us, and I am quite sure I may, in your name, tender our very best thanks to the lecturer for his paper.

The vote was passed unanimously.

MR. JACQUES.—Mr. Chairman, I am very glad that someone has had the courage to stand up and assert the claims of national music to be regarded as the outcome of a people's feelings. I know that amongst my own musical acquaintances there are many who rather pooh-pooh this theory, and I have always felt that that was very ridiculous. The matter has never been thoroughly gone into. Féétis, in his "*Histoire de la Musique*," went into the question somewhat extensively—in fact, was one of the first to do so; and, of course, later on, we have had Mr. Rowbotham doing the same thing. Unfortunately, both these gentlemen were rather given to imaginative views, and though both their books contain an enormous amount of matter, research, and thought, they are essentially works of a character to be read by men who are thoroughly well versed in the subject, and who can, consequently, take their statements with a grain of salt. It has ever been recognised that poetry and the other arts have been largely influenced by the conditions under which people lived, such as climate, &c., and I really fail to see why we should not accept the statement that music has been similarly affected. Mr. Webb has given us a few instructive remarks as to the Scotch "Snap," and other figures, as also the psychological reason for the prevalence of such characteristics in certain musics more than others, and I only hope that he will elaborate the subject. English music itself would yield very large results in that respect. It may, perhaps, be interesting to recall the fact that Mr. F. Galton in his investigations into facial peculiarities, speaks of a number of faces being put together, from which he deduced a special type by rubbing down, so to speak, all the differences between these various faces, and it seems to me that exactly the same process might be applied to national music, by getting a number of authenticated tunes of one nation, and deriving a typical figure from the whole of them. I was very much struck with the Hungarian scale played by Mr. Webb. This strongly resembles one of the Indian scales. In a book I have at home some of the tunes puzzled me very considerably. They included the

F \sharp , the A \flat , and the B \natural . They also contain the D \flat which Mr. Webb's scale does not. They mostly finish on C, as a kind of tonic. The effect is very peculiar and would seem to bear out Mr. Webb's suggestion, that there was an eastern influence brought to bear on that Hungarian music.

Mr. WEBB.—One of the reasons why I did not go into the subject of the old tunes at greater length was because I have grave suspicions about them myself; looking at the sources whence we derive them, one has to be very careful. I think the very early tunes commenced with a chant, a sort of recitation on one note, gradually spreading up and down, and that the first idea of a tune was merely the inflection of a third which the voice naturally takes in forming a full stop. The speaking voice ranges about a fifth, and as people become under the influence of a greater emotion, the voice rises. I do not know that it is a fact, but I believe that it is generally accepted that the pitch of the human voice becomes lower with civilization. In the case of savage nations, you will find that when their emotions and passions are excited they speak in a higher key. The voice of the intellectual man, when he gets into a rage, becomes more intense and lower, while that of the uncultured individual goes up in pitch. In Wales there are two races: the broad-headed man you will find largely in the South, and the long-headed man in the North. Music certainly comes from the South and South-west. Some time ago a theory was started that all art came from the Celts. I must say that so far as my researches enable me to judge this is erroneous. The Celt was merely a warrior, a splendid soldier, and he took to the pipe because it stimulated his martial ardour. He only became artistic in proportion as he intermixed with the broad-headed man, whom he conquered.

The CHAIRMAN.—Before we part I should like, with all diffidence, to make a suggestion or two. If this Society is to be of any use, it should be in the direction of bringing out thought. As to the origin of Song, I would suggest that it is not the right view to take of the matter to say that it commenced with a chant. Surely the origin of singing would have come from listening to the birds. Does not that seem a natural thing? And the bird song is by no means a limited one at all. You get something akin to that in the jodelling of the Swiss in their native country. There you have a tremendous range. It strikes me that the early people did not begin by sitting in a sort of parliament and speaking in a monotone. Then again, is Mr. Webb right in saying that the voice gets deeper as civilization progresses? I do not think so. Surely this, again, is a racial question? The southern people, Italians, for instance, speak in deep voices, while the northern people always speak in high

voices. Has this not something to do with language and race? All the northern people speak high. I am speaking high now, though in my normal voice. A Roman would talk to you right down in his boots. I cannot admit that it is civilization that alters the pitch of the voice. I am not a very great traveller, but I have been in America amongst the Red Indians, and I found them to speak in a very deep voice.

Mr. JACQUES.—I think you are right in both matters, Mr. Chairman. I believe that there are two origins of song. I can recall a number of chants published of savage nations; and these go very low. On the other hand, they have little tunes which they repeat incessantly, and which recur in as perfect a symmetry as possible, much like the call of a bird; so that I should say there are two origins of song: one due to the imitative instinct, and the other to the expression of feeling.

Mr. WEBB.—The desire to perpetuate deeds of fame it seems to me would be the chant form, a sort of monotone.

Mr. HERTZBERG.—The lecturer says that some of the Scotch music took its origin in the war-dance. I do not quite understand how music could originate in dancing. It seems to me that the enquiry as to the origin of music is a little beside the question. If we attribute it to an attempt to imitate the song of the birds, what is the origin of the bird song? Helmholtz, of course, says that music probably originated in an attempt to imitate the natural inflections of the human voice in speaking.

The CHAIRMAN.—It strikes me that that character of music is quite apart. Even Helmholtz must concede something. I quite agree with Mr. Webb as to the notion of the war-dance bringing forth a peculiar kind of song—song and dance have from time immemorial been associated together. The origin of the word ballad was that it was a thing to be sung and danced, and you get many references to it in Holy Scripture, where you will find it written that “the people went out with singing and dancing.” It seems to me, that in the early times we have been trying to penetrate, the war-dance was associated with song. Of course, these are all merely probabilities, though, I submit, the most feasible ones.

APRIL 14, 1891.

H. C. BANISTER, ESQ.,
IN THE CHAIR.

SOME NOTES UPON RUSSIAN ECCLESIASTICAL
MUSIC, ANCIENT AND MODERN.

By W. J. BIRKBECK, M.A.

No foreigner can fail to be struck by the Church music of Russia. Even if his acquaintance with the country be limited to a short visit—say a fortnight spent in St. Petersburg, with perhaps a flying visit for a few days to Moscow, he is sure to be impressed by the excellent unaccompanied singing of the choirs not only in the large cathedrals and monasteries, but also, if he visit them, in the ordinary parish churches. He will be loud in his praise of the marvellous richness and compass of the voices, and more especially of the deep notes sung by some of the basses, going down to the A, G, and even F of the 16-ft. octave of the organ, voices the like of which are to be heard in no other country. Although there is no organ or instrumental accompaniment of any kind to sustain the voices, the singing is never out of tune. Even the clergy seem to be universally possessed of musical ears. In the long *ectena*, which recur so frequently in every one of the Greek Church services, and which in form somewhat resemble our Litany, neither the deacon who sings the suffrages nor the choir which responds ever seem to lose the right pitch, and get flatter and flatter as we so often hear in this country. In fact, I don't think that anyone who has had the opportunity of comparing the ecclesiastical music of the various nations of Europe will refuse Russia the credit of surpassing all other countries in the general excellence of her church singing.

Why should this be so? In the first place, I think we must attribute it to the fact that the Russians are naturally an extremely musical people. This anyone will find out who happens to travel amongst the peasantry. Whether in the towns amongst the workmen or in the country villages one always meets with good singing and good voices, and no country can boast of a larger or richer collection of popular melodies. In the second place, the artistic feeling of the

nation* seems naturally to find its expression in the adornment of ecclesiastical buildings and the services held therein. Nothing strikes the foreigner more than the amount of wealth which is expended upon the Church in Russia. It is not only the rich cathedrals in the two capitals which blaze with gold and silver and jewels of all kinds. One finds the same thing (of course, on a smaller scale) in nearly every parish church, and this even in the poorest parts of the country. I myself have seen in the villages close to the White Sea, hundreds of miles from the nearest railway, wooden churches full of beautiful silver lamps, icons studded with jewels, and vestments of cloth of gold; and many of these turn out upon enquiry to be the gift of some peasant or other, perhaps purchased with the savings of a lifetime. It is not strange therefore that vast sums should be spent upon the music of the rich churches, and that even in the poorer parishes a great deal of pains is often taken in the matter.

The best choir in Russia, if we except the Emperor's private choir, is undoubtedly that which sings in the Cathedral of the Assumption at Moscow, the Church in which the Coronation of the Tzar takes place. The choir which sings in this Cathedral is now known as the Synodal Choir, but only took this name when the Holy Synod was created to take the place of the Patriarchs of Moscow, before which time it was called the Patriarchal Choir. It was founded in the sixteenth century, perhaps earlier, and always accompanied the Patriarch, wherever he happened to be celebrating divine service. The Tzar had, and still has, a similar choir. The headquarters of the latter are now at St. Petersburg. In old days, if the Tzar and Patriarch both happened to be present at the same service, the two choirs sang together, that of the Tzar standing on the right side of the altar screen, that of the Patriarch on the left. The Synodal Choir at the present day consists of eighty picked voices, boys and men. They have an excellent school for the boys, presided over by Prof. Smolenski, the Director of the whole choir, under whom they receive a thorough musical education, each boy being obliged to learn some musical instrument as well as singing. I was fortunate enough to be at Moscow last year for the 15th of August, the Patronal Festival of the Cathedral, and Prof. Smolenski kindly gave me a place close by the choir, who stand on a sort of raised daïs just outside the altar screen, and are dressed, not in ecclesiastical robes, but in a very picturesque uniform of red and blue and gold, a costume which is, I believe, of Polish origin. The services lasted from three till five in the afternoon, and again from six till after midnight, and on the day of the Festival itself, from nine in the morning till one o'clock. Of course a good

* I am speaking of course of the nation as a whole, not of individual artists.

part of this time was occupied in lections and other readings, but still the choir were seldom at rest for more than ten minutes at a time. The music sung was of every description. Some of it quite modern and written in 4, 5, 6, and 8 parts. But the greater part of it was taken from one or other of the old systems of ecclesiastical music used in Russia corresponding to the Plainsong of the West; some from the Kieff Chant, some from the Bulgarian Chant, some from the Servian Chant, and much of course from what is known as the *Stolpovoi Rospjév*, the old plain chant of Great Russia. To these melodies were added harmonies, sometimes of a very modern character. Occasionally the *canto fermo* was placed in the treble, and three other parts added to it below; but at other times it was taken by half the basses, tenors and trebles in three octaves, while the remaining trebles sang independent parts, sometimes two, above the melody, and the rest of the harmony was filled in by the remaining voices, the second basses being divided into bassi and contra-bassi. These latter were four in number, and as I was much interested in these deep voices for which Russia is so celebrated, I asked one of them to allow me to look over him while he was singing. He sang all the way through like a double-bass—an octave below the note written as far as his voice would reach, and it was interesting to watch how low this was. All four of them could sing the low G an octave lower, and one of them could even take the F below. I asked him a few days afterwards to sing a scale down with the piano as far as he could go, and he again sang down to the low F, and he told me that in the Emperor's choir at St. Petersburg there was a bass who could sing E \flat .

But now with regard to the music sung in the Russian Churches. A great deal of entirely modern music has been composed for the services within the last hundred years, and although the church authorities have never abandoned the principle of appointing definite melodies to every part of the service, any more than has the Roman Church, yet there is almost as much liberty on this point with them as there is in the West, with the exception of course that neither organ nor orchestra are admitted under any pretext. But although in many of the churches in the towns the music is almost entirely modern, in the monasteries the old Plainsong of the Church is retained in one form or other, and even the modern music for many parts of the service is based upon one or other of the ancient schools of chant. It may be said, I think, that at the present time ecclesiastical music in Russia is going through a period of transition, having never really recovered from the revolution caused by the introduction of harmony into the Church services. Up till the end of the sixteenth century, the old Slavonic plain chant was sung

entirely in unison, as it still is amongst the sects included under the term *Staroviertzi* or Old Believers. But in the sixteenth century, we find in the South-west part of Russia, at this time under the Poles, that harmony was first introduced amongst the Uniats, who while preserving the Greek Ritual, had been induced under the influence of the Polish Jesuits to acknowledge the supremacy of the Holy See. The cause of the Orthodox Church was at this time maintained chiefly by means of the *bratstva* or brotherhoods, which were formed in order to protect the Church against the influence of the Polish nobility and the proselytizing zeal of the Jesuit Order; and these brotherhoods seeing the immense influence that harmonised music had upon the people, and determined, as we should say, "not to let the devil have all the best tunes," started choirs to sing on the same principle as their rivals, and added harmonies in three or four parts (mostly in note to note counterpoint of a very elementary description) to the old Slavonic plainsong. From hence it gradually spread into Great Russia, although it made very slow progress; for it was strenuously resisted both by some of the Church authorities and by the extremely Conservative temperament of the nation, which was the more intensified by fear and dislike of Rome. This antagonism to the West reached its climax in the first years of the seventeenth century, when the Poles took Moscow, and all but made an end of the nation and the national Church. But after these troubles were over the harmonised settings were gradually introduced together with the stave of five lines, first into Great Novgorod, and then into Moscow itself, until by the beginning of the eighteenth century nothing but the plain-song remained in common between one monastery and another, every choir having its own way of harmonising the melodies.

It is only amongst the Dissenters, whose forefathers left the Church in the seventeenth century, that the old music is now sung in its original form. These sectaries, who are known as the *Starobrjadtsy* (Old Ritualists), or, as they themselves like to be called, *Starovjértzy* (men of the *old belief*), left the Russian Church owing to the reforms introduced by Nicon, the patriarch of Moscow, in the middle of the seventeenth century. These reforms of Nicon were, as it would seem to us, the merest trifles in ceremonial, such as, for instance, that the sign of the Cross must be made with three and not two fingers, or else in corrections of various mistakes which had found their way into the service books. The Niconian reforms were made in the most conservative spirit, after careful comparison with the original Greek texts, and the advice of the most learned Greek scholars who could be found. They raised, however, a

perfect storm of opposition amongst the people from one end of the country to the other, and eventually resulted in the Raskol or schism of the Old Believers, which even at the present day numbers perhaps eleven million souls in Russia. It would take too long to trace the subsequent history of this schism ; suffice it to say that the Raskol has split up into countless rival sects, which agree only upon two points—namely, that both the Russian Government and Church are living under the reign of anti-Christ, and that the chief marks of anti-Christ are these ritual reforms—such as making the sign of the Cross with three fingers instead of two ; the corrections in the grammar, spelling, and text of the service books ; and lastly, the introduction of harmonised music and the five-line stave into the services of the Church, and, above all, not singing in the true eastern ecclesiastical style—through the nose !

These old Believers underwent every kind of hardship and suffering rather than surrender their peculiar tenets, when the Government tried to suppress them. And it will be easily imagined that a man of Peter the Great's will and autocratic temperament was not likely to look with great favour upon peasants and priests who regarded him as the incarnation of anti-Christ come into the world and boldly proclaimed him as such. At the present time, however, they are left to their own devices, and are not molested in any way unless they attempt to proselytise. It is amongst these that one must go to hear the old music and collect manuscripts written in the old notation. It is not, however, always easy to get at them, partly because of their fanaticism and dislike of strangers, partly from the fact that most of their chapels are in private houses. I have taken a great deal of trouble at various times to study these sects, and have occasionally got into some of their chapels, though generally under the promise that I should not pray, but only come to look ; so nervous are they lest one should pray the wrong way or cross oneself with the wrong number of fingers, and so defile their place of worship ! I have collected a good many musical manuscripts from them, some of which I have brought with me to-night ; but my original hopes of learning something from them concerning the history and scientific structure of their music were doomed to sad disappointment. The first time I ever tried to get some information out of them was in the summer of 1888, when I visited with a friend a large settlement of theirs in the neighbourhood of St. Petersburg. After the service, I asked one of them who had been leading the choir where their music originally come from ? " Why ask such questions ? " he replied ; " it is, and that is all I can say about it." " But," I said, " it must have come from somewhere.

Was it from Greece, or are the melodies Slavonic in origin ? Who originally composed them ? " To these questions he replied, " God alone knows ; perhaps it was the Tzar David or perhaps the Tzar Solomon ! "

It will therefore be quite evident that there is little in the way of scientific information to be got out of the Old Believers, even upon one of the subjects for which many of them have endured exile and every kind of hardship rather than abandon their old custom. But during the last fifteen or twenty years much interest has been taken in these old melodies amongst Russian musicians, more especially at Moscow, the real centre of Russian national feeling, while their efforts are receiving every encouragement and assistance from the authorities of the Russian Church, which now, no less than of old, is ever to the front in any truly national undertaking. I shall devote the rest of my paper to a few remarks upon the origin, character, and ancient notation of these melodies.

The history of this music, known as the *Stolpovoi Rospjiev*, is closely connected with the history of the Russian Church itself. As is well-known, Christianity was brought to Russia from Constantinople, and became the accepted religion of the country at the Baptism of the Grand Duke St. Vladimir, at Kieff, towards the end of the tenth century. We should therefore expect to find many traces of Byzantine influence in the church music of the country, just as we find in other branches of ecclesiastical art, such as architecture and painting. Thus the Metropolitan Cathedral of St. Sophia, at Kieff, was built in the eleventh century avowedly as a copy of Justinian's famous church at Constantinople ; the great Pecherskaja Lavra close by—the Mother of all Russian Monasteries, and centre of enlightenment and learning in those times—was, in its origin, literally a colony from Mount Athos ; the Russian icons and sacred paintings were unmistakably Byzantine in style, and are so for the most part still ; the Russian services were identically the same as those used in the Mother Church. What then could be more natural than to expect that the Byzantine musical system would be introduced together with all other departments of Church ritual into the newly converted country, just in the same way that in the West St. Augustine brought the Gregorian melodies with him to England when he founded the See of Canterbury ? We constantly read in Bede, and other early writers, of singers being sent from the English monasteries to Rome for instruction, and of Bishops applying to the Popes for Italian singers to come to England and set the music of their dioceses in order. Why then should not the same thing have happened in Russia, and the music of the Mother Church have been brought there, just as it was ?

more especially as all the early Metropolitans of Kieff, with one exception, were Greeks and actually appointed and consecrated at Constantinople.

Indeed, from a superficial examination of the early Slavonic service books one might easily be led to conclude that it was so. Not only are the titles of her choroliturgical books such as the *Októikh*, the *Triodj*, the *Irmológi*, obviously of Hellenic origin, corresponding exactly to the Greek books of the same name, but the very headings of the various portions into which they are divided, such as *stikhira*, *antiphon*, *troparj*, *kondak*, are Greek words with their terminations altered so as to fit into the Slavonic language. Even when the Greek word itself is not used a Slavonic equivalent is coined so as exactly to reproduce the sense of the original. Thus, for instance, the *Októikh* is sometimes called *Osjmoglasnik*, a word which is compounded of the Slavonic *osjmj*, *eight*, and *glas*, literally *a voice*, but in its ecclesiastical meaning "*a mode*"; thus exactly corresponding to the Greek *óktώηχος*.

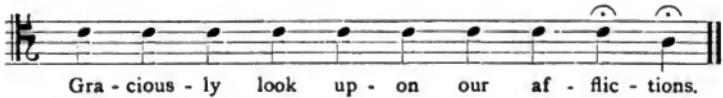
Indeed, from these headings a connoisseur of Greek ecclesiastical music would be led to expect that he would have little difficulty in deciphering the music of the Russian service books—that is to say, until he came to look into the matter more closely, when he would find that these resemblances are more apparent than real; and that these indications are merely of the nature of ritual directions, but do not touch the melodies themselves—in fact, that it is the frame of the picture, but not the picture itself which is the same in the two cases. There was one insuperable obstacle to the introduction of the melodies used at Constantinople into Russia, in the same manner that the Gregorian music was introduced into all Rome's foreign missions; and this was, that the orthodox Eastern Church, unlike the Roman Church, has always made a point of translating its services into a tongue which can be understood by the people for whom the services are intended. Thus in all Slavonic countries, Russia included, the services are read and sung in Old Slavonic, which is indeed a dead language, but still quite as easy for the common people even at this day to understand as the English of Spencer would be for us. But in all early forms of ecclesiastical music before the invention of counterpoint and harmony necessitated the introduction of measured rhythm in the shape of bars, the rhythm of the music depended on the words to which it was fitted, and was, in fact, determined to a great extent by the distribution of the accents of the text. This, which has often been pointed out in the case of early Western Church music, was equally true of the music of the East, as exemplified in St. Augustine's often-quoted saying,* that St.

* *Confessiones*, x. 33.

Athanasius had described the music of the primitive Church as more like reading than music in the ordinary sense of the word. Now I cannot boast of any knowledge of Greek ecclesiastical music, and therefore cannot say to what extent and in what manner this principle is carried out in Byzantine Church music. But in the West there is no doubt whatever that the acute accent or prominent syllable of a word which in speech depends upon an almost unconscious raising of the voice, was in music reproduced by raising the voice to a higher note in the scale. It would be going too far from my subject to illustrate this from the more elaborate plainsong melodies of the West, but I will just point to the simplest instance of this of which I know, and which will be familiar to everyone here. In our Cathedrals we have preserved this most ancient tradition of the Church in the music of the versicles and responses. Why does the melody—



differ from that to which we sing—



Simply because of the different position of the accents on the part inflected. The strongly accented final monosyllable "Christ" requires the raising of the voice when sung, whereas in the word "afflictions" the accent is on the penultimate, and the voice naturally descends on the final syllable.

In the case of the Russian Church, the same principle will be found universally underlying its musical system—it will be seen to affect the simplest and most elaborate melodies alike. Let us take, for instance, the words *Gospodi pomilui*, the Russian equivalent for *Kyrie eleison* or "Lord, have mercy." This is invariably sung by the Old Believers—



and in all the harmonised forms to which it has subsequently been set, this feature always appears in some form or other. A more elaborate example of this rule is to be found in the ending to the priest's prayers in the Liturgy (which, like the

per omnia secula seculorum of the West, is the only part which is said aloud) :

Ja - ko Two - jé jestj tzár - stvo i sí - la i slá - va,
For Thine is the kingdom, and the pow'r, and the glo - ry,

Ot - tzá i Sý - na i Svja - ta - go Dú - kha,
of Fa-ther, and Son, and Ho - ly Spi - rit,

ny - nje i pri - sno i vo vjé - ki vje - kóff.
now, and ev - er, and to a - ges of ages.

Here it will be seen how the music ascends with the accent, and descends on unaccented syllables. This may be seen especially exemplified at the pauses, the final note of which ascends or descends according as to where the accent in the word is placed.

And to show how not only the pitch of the music, but the rhythm itself is affected by the accent of the text, one has only to point to the following musical passage sung to three separate sets of words. The passage is from an extremely popular service in Russia called the *moleben*, which may be sung in honour of our Lord or of any of the Saints. The passage I am quoting is a sort of refrain which recurs at regular intervals during the service—

In the *moleben* of the Saviour the passage is set thus :

Slá - va Tje - bjé Bó - zhe nash, slá - va Tje - bjé.

In the *moleben* of the Mother of God, we have—

Pre - svja - tá - ja Bo - go - ró - di - tze spa - sí nas.

In the *moleben* of any other Saint the music is modified in the same manner ; for instance, take that of St. Alexander Nevski—

Svja - tý.....A - lex - án - dre mo - lí Bó - ga o nas. *

* The translations of these three passages are (1) "Glory to Thee, our God, glory to Thee"; (2) "Most holy Mother of God, save us"; and (3) "Holy . . . Alexander, pray to God for us." In the latter the words *veliki knáshe* (grand duke) have been omitted, as they do not affect the melody.

These everyday specimens of Russian ecclesiastical music in its simplest form will show that the fundamental principle underlying the structure of the melodies is the same as that of the Western Church in early times; and the same fact might be pointed out in the case of the more elaborate melodies, just in the same way as in the West it may be traced throughout the whole Gregorian Antiphonar and Gradual. This being the case it will at once be seen that it would be impossible to set the Greek melodies as they stood to a language like Slavonic, the accent and rhythm of which differs in almost every possible respect from those of the Greek language. Indeed, there is one fact about the Slavonic service books which to my mind conclusively proves that such an idea never entered into the minds of their translators, and that fact is, that in all the translations from the Greek, the exact order of the Greek text is, as far as possible, preserved, and is reproduced even in cases when the natural order of the original Greek had been altered for the sake of some metrical rhythm or other. If the translators had had any idea of introducing the actual melodies which had been set in Greece to the poetical portions of the offices, they surely would have tried not to preserve the order of the original words, but to reproduce in some way or other the metre of the Greek original. In that case there would have been no more difficulty in using the old melody than we find in adapting Gregorian hymn tunes to English metrical translations; whereas as the text now is, the adaptor would experience something of the same difficulty as some of us do who try (for instance) to set Gregorian music written for the Latin words *accipe deprecationem nostram* to the English words "Receive our prayer"!

The fact probably is, that each Slavonic nation as it was converted to Christianity had to create a fresh set of melodies for church use; and while accepting the general principles upon which ecclesiastical music was based in Greece, and indeed at that time throughout all Christendom, and even reproducing in some form or other equivalents for the eight modes, which appear in both Eastern and Western systems, and in the East at least are, as we shall afterwards see, indispensable for ritual purposes, did not consider it necessary to import the exact melodies or even the same scales into their musical system as those in use in the mother church. Recent historical research has shown that the Russian Church owes much to the Bulgarians, who had been converted at an earlier period by the Apostles of the Slavonic race, SS. Cyril and Methodius; and it is not at all improbable that the germs of Russian church music came from that quarter, where the service had for long been sung in the Slavonic language. Whether this be the case or not, it is certain that

not only the Slavonic melodies in Russia, but even the modes in which they are written differ entirely from anything Byzantine. Much learning has been expended in Russia during the last fifteen or twenty years in attempts to discover in what the distinguishing characteristics of each of the eight modes consisted, and to reduce them to some kind of system, with recognised finals and dominants; but as yet without any satisfactory results. Certain melodies are labelled in the service books as belonging to a certain mode, but here it seems as if the characteristics of their modality ended. We find neither a definite final nor a definite dominant belonging to each mode, and those who have tried to formulate some theory to that effect have always been obliged in the end to confess that they find almost as many exceptions to their rule as they can quote instances of it. For instance, Professor Razumoffski describes the first mode as ending on D, but occasionally on A or G below. When one comes to examine the melodies, one finds that in the *Októikh* (to take one book only) there are quite as many instances of a first mode melody ending on G as on D, that there are some few ending on A and others ending on E, which the Professor describes as the dominant of the mode. One cannot help thinking that in making out a scheme of eight modes with finals and dominants, he has been led away by the analogy of the Western Church modes, and that when the matter has been more fully investigated, the essential difference between the Slavonic modes may be found to consist in some other features peculiar to their respective melodies. But on this point I cannot pretend to speak with certainty, and considering that Russian musicians who have made a lifelong study of these melodies, have not yet been able to agree upon any theory solving the question in a satisfactory manner, it would be presumptuous for me to attempt to do so.

But in whatever differences the modality of the Russian Church melodies consists, it was necessary that its music should be divided into eight modes, as will be evident from the structure of the Greek service books themselves. These received their final form, so far as music is concerned, in the eighth century, at the hands of St. John Damascene, who although not the inventor of the eight ecclesiastical modes, any more than was St. Gregory of those of the West (for they had existed in each case long before), was the first to reduce them to a system in connection with the whole yearly circle of the Church services, as they still appear in the Greek service books. To him is undoubtedly to be attributed the present form and arrangement of the *Októikhos*, *Irmológion*, *Triódion*, and other Eastern musical service books. Let us take as an instance the noted *Októikhos*. It contains the music and words of all the variable portions of the choir

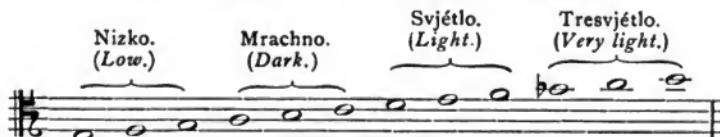
offices for Sundays and week days throughout the year, from Pentecost until three weeks before Lent. The whole book is divided into eight portions, each of which belongs to one of the eight ecclesiastical modes or *ηχοι*. Each of these modes is used for a week, except in so far as the ordinary course of the week may be interrupted by intervening Festivals or Saints' Days; and all eight are used in rotation, the first week after Pentecost beginning with the first mode, the second with the second, and so on, until all are finished, when they begin again with the first mode. It will be seen, therefore, that the eight modes became part of the ritual system of the Eastern Church in a manner and to an extent which they never did in the West. In the ancient Gregorian manuscripts, one never comes across a heading to a piece of music telling one in what mode it is. In the Eastern service books this heading invariably appears not only in the music books themselves, but also in those which contain no notes whatever, in the shape of a rubric introduced, as we have seen, for purely ritual reasons. It follows, therefore, that into whatever language the Greek service books are translated the eight modes must of necessity be reproduced in some form or other, otherwise there would be no rules for using the books themselves. Accordingly it will be found in comparing the Greek books with the Slavonic translations of them, that the headings of each portion agree exactly *; that what is ordered in the Greek to be sung to the first mode is assigned also to the first mode in the Slavonic version, and so on, not only through the *Októikh*, but also in the other service books.

There is another point which makes for my contention that the eight Slavonic modes are not modes in the sense in which the eight Gregorian or our modern major and minor modes are. Besides the ancient *Znamenny Rospjév*, or ecclesiastical chant of Great Russia, which we are now considering, there are other species of music in use in Russia, such as the *Kievski Rospjév*, or *Kieff Chant*, which is very popular in Russia, the *Bulgarian Chant*, and several other forms. These also contain the division into eight modes, but these modes do not, as far as their musical structure is concerned, in the least correspond with each other, or with the *Znamenny Rospjév*, although all are of Slavonic origin. Then again there are certain melodies which are not assigned

* The eight Greek modes are arranged in a different order to those of the Gregorian system. In the latter the odd numbers represent the authentic modes and the even numbers their respective plagals. But in the Greek books the authentic modes are numbered first ($\eta\chiος \alpha$, $\eta\chiος \beta$, etc.) while the plagues form the last four modes. Thus the fifth mode is called "plagal of the first" ($\eta\chiος πλ. \alpha$), the sixth mode "plagal of the second" ($\eta\chiος πλ. \beta$), etc. In the Slavonic books they are simply numbered from 1 to 8.

to any mode at all. All this seems to me to show that the modes in Slavonic ecclesiastical music do not in any way find a parallel in the Gregorian modal system, and to point to the fact that they are possibly rather of ritual than of musical significance.

I must next go on to the scale or gamut used in the ancient *Znamenny Rospjév* of the Russian Church. This is a very limited one, and if derived from Greece at all can certainly only be described as a fraction of the diatonic system. It consists of twelve notes, which are given in the Russian books printed on lines in the following form, though it must not be assumed that the exact pitch of the notes is thus represented (for this rests, as in the West, with the Precentor), but only the order of the intervals:—



It will be seen that the scale consists of four trichords consisting each of intervals of two whole tones, and separated the one from the other by a semitone. Another point about it will at once strike every musician. The difficulty of the tritone—the *diabolus in musica*—is altogether avoided by the upper B being B \flat , while all danger with regard to possible false relations or discordant progressions between it and the lower B \sharp is obviated by the fact that the intervals in the melody are never greater than a fourth, and extremely seldom as long as that; and that in practice it is seldom that more than six notes of the scale are used in the same melody. It was, I suppose, chiefly owing to the old plainsong rules in the West against the use of the tritone in the same neume or musical phrase, that the interval was absolutely forbidden by the early contrapuntists. Supposing, as the Russian composer Bortnjanski suggested, that the Russians should attempt to construct a school of counterpoint grounded upon these old Slavonic church melodies, it would be interesting to see how they would treat this matter. But of course for unison singing (and these melodies were originally written for unison singing, and are still exclusively so rendered by the Old Believers) they have very neatly avoided the whole difficulty.

But I must next proceed to the ancient Slavonic notation. Time will not allow me to trace the earlier developments of it, nor have I as yet worked out the connection between it and the Bulgarian, and through the Bulgarian with the Greek notation, though I have traced some of the forms

back through the earlier MSS. to Greek progenitors. I shall, therefore, simply give some description of the notation as it existed in the sixteenth century, though I cannot attempt to go through all the forms; and then shall describe some additions which were made to it in the seventeenth century, in order to make it easier to read, before the ancient notation was abandoned in favour of the stave of five lines imported from the West.

This system, known in Russia as the *krjukovája notátzia* or "hook notation," was perhaps the most elaborate system of musical notation ever devised. It contains literally hundreds of different formulae; some representing single notes, some two or more, and others long successions of notes—some short, some long, some *piano*, some *forte*. I am sure that your first impression will be that it is one of the most clumsy systems ever devised by the wit of man; and I myself must own that it takes me several hours to decipher even a short piece of music written in it. But when we look back upon the history of our own notation previous to the invention of the stave, how imperfect it was, and how many were the vicissitudes through which it passed in the ingenious attempts of various musicians to improve upon it, we ought not to withhold our sympathy from the Russian ecclesiastical musicians, who, after the fall of the Greek Empire in the fifteenth century, may be regarded as the sole preservers of music as progressive art in the East. At any rate, this notation should be interesting to every musician, as an instance of the growth and development of a system perfectly independent from and different, and yet in its history presenting many striking analogies to the history of that notation to which we are accustomed.

I will begin with some specimens of single notes, and first with the *krjuk*, or "hook" itself, from which the notation takes its name. It appears in four different forms:—



Krjuk
nizki.



Krjuk
mrachny.



Krjuk
svjétly.



Krjuk
Tresvjetly. 

One of these is assigned to each of the four trichords of the scale (*vide* p. 149) to represent any one of its three notes. It will be seen, therefore, that although not quite so indefinite with regard to pitch as the neumatic system of notation in the West before the invention of the stave, it was still extremely inadequate to express the exact intentions of the composer. With regard to time it represents our minim, and here again we shall notice that the Slavonic notation differed from the Western neumatic system, which gives no clue whatsoever with regard to the length of the note, whereas

in the Slavonic system four different lengths of note were recognised, corresponding generally, but not quite strictly, to our semibreves, minims, crotchets, and quavers.

But to continue—besides the *kriuk*, or “hook,” there are several other forms which represent single notes, corresponding in length to our minims. The *kriuk* is used exclusively for accented notes—that is to say, the note falling on the accented syllable of the word to which it belongs. For an unaccented minim the *stopitza* (little foot) does service, and also in some cases (which depend upon the nature of the musical phrase and the forms which it precedes or succeeds) the *zapjatája* (comma). Then there is the *palka* (walking stick), which represents a minim sung pianissimo, and lastly we must mention a note called *paraclit*, which only occurs at the beginning of a musical phrase, and is the lineal descendant of the Greek letter Σ, as may be clearly seen in the form in which it appears in the earlier MSS. down to the end of the sixteenth century.



Stopitza.



Zapjatája.



Palka.



Paraclit.

Paraclit
(earlier form).

None of these forms have anything to show on what degree of the scale the note which they represent is sung, nor even to which of the four trichords it belongs; this is only indicated in the case of forms (such as the *krjuk*) which represent a note falling upon the accent.

Having gone through the different forms of minims, we must next proceed to the representatives of the semibreve. The first and principal of these was the *statjá* or “stay.” It, like the *kriuk*, had its separate form for each trichord of the scale except the highest, in which such a long note seldom appears. Occasionally, however, a semibreve upon B \flat occurs, and in that case the form used in the trichord below is borrowed, and to it is added a little mark, which, although undoubtedly originally derived from the Greek letter Ψ and representing the Greek word ψήψι, or “high,” was given by the Russians the name *soróchja nozhka*, or “little magpie’s foot.” The full title then of this semibreve on B \flat was *Statjá svjétlaia s’ soróchjeju nozhkoju*—that is to say, “a light stay with a little magpie’s foot”!

Statjá
prostája.Statjá
mrachnaja.Statjá
svjétlaia.Statjá svjétlaia
s' soróchjeju nózhkoju.

These various forms of the *Statjá* are, however, only used when the note falls upon an accent, for an unaccented

semibreve the first of these does duty throughout the whole scale. Then we have other forms of semibreve, such as the *rog* or "horn," and the *kryzh*, the meaning of which I don't know. Both of these were used only as finals, and the latter represents a long pause on the final semibreve. The *kryzh* besides appearing alone, is used in connection with other forms, generally with a view to lengthening the note, or one of the notes in a group in which it appears. Thus we occasionally find an instance of the *zapjatája s' kryzhem*, that is, the *zapjatája* with a *kryzh*, meaning a prolonged minim, that is to say, practically a semibreve occurring in the midst of the melody without an accent upon it.



Rog.



Kryzh.



Zapjataja s' kryzhem.

Before I leave the signs representing single notes I must point out two modifications of the forms used for a note the length of a minim. The first of these is the *Ottjázhka*, or "expansion" or "prolongation," which had very much the effect upon the *krjuk*, *paraklit*, or *palka*, to which it was added as has a dot in modern music, which indeed it somewhat resembles in form. Thus the *krjuk s' ottjázhkoju* represents a dotted minim in modern music.

Krjuk
s' ottjázhkoju.Paraclit
s' ottjázhkoju.Palka
s' ottjázhkoju.

The other modification was the *otsjéka*, a word derived from the verb *Otsjekátj*, "to cut off." It reduced the *Krjuk*, *Paraklit*, *Palka*, or other form of minim to which it was added by half its length, and made it, in fact, a crotchet.

Krjuk
s' otsjékoju.Paraclit
s' otsjékoju.Zapjatája
s' otsjékoju.Stopitza
s' otsjékoju.Palka
s' otsjékoju.

We must now proceed to consider the more elaborate forms which appear on the opposite page. But before going further I must explain the small red marks, which are interspersed amongst these forms. These were additions made early in the seventeenth century. Up till then—that is to say, for the first five centuries of its existence in Russia—the notation consisted of nothing but the black signs, as can be seen in two of the oldest MSS. which I have brought here to-night. It will be evident that like all systems of notation in their infancy the *Známmennaja notátzia* was extremely indefinite; that like the neumes in the West these notes were

Nizko (low) Mrachno (dark) Svjetlo (light) Tresvjetlo (very light)

Stopitzy. Zapjatyja. Palki. Paraclit. Statji.

Golubchik Skaméitza. Golubchik tikhi. Skaméitza tikhaja. Stopitza s'ochkom. Kriuk s'podvérikoju. Kriuk s'podchashiem. Golubchik s'lomkoju.

Dva v'cheinú. Strielá prostája. Strielá prostája. Strielá gromkaja. Strielá kryzhevaja. Zmiitza. Pauk.

Ve - chér - nja - ja ná - sha mo - li - tvy. &c.

note in the literal sense of the word—that is to say, merely signs, or notes of reminder to the singers who already knew more or less by heart the melody which they were singing. But such an imperfect system was, as we may easily imagine, found to be extremely inadequate to preserve the melodies in their original form ; and, in fact, at the end of the sixteenth century, very much the same state of things came about in Russia as Guido of Arezzo describes at the beginning of his treatise, *De Ignoto Cantu*, in which he tells us that no two singers could agree in the interpretation of the neumes, and proposes the stave as a remedy. The political circumstances of the country, the disorder of which could not fail to affect the Church—the Polish invasion, which, owing to the hatred of the Polish Catholics for the Orthodox religion, probably injured the Russian Church more in the course of thirty years than the three centuries of Tartar supremacy which had preceded it—all these circumstances, together with the decay of learning amongst the clergy which resulted from them, combined to lower the standard of knowledge in the monasteries and other centres of ecclesiastical enlightenment. When better times returned in the seventeenth century, it was evident that if the ancient melodies were to be preserved at all, something must be devised to make the notation more clear and definite. At length a Russian Guido of Arezzo was found in the person of Joann Shaiduroff, a monk of Novgorod the Great. It will be seen at once that to place these notes just as they were upon lines (as Guido of Arezzo had done in the case of the far simpler neumes of the West) was impossible without inventing an entirely new system of notation. Shaiduroff therefore fell back upon another device. Taking the MSS. just as they were, he added to each note, or group of notes, a little sign in red ink, *kínovarnaja pomjéta*, which gave the exact height in the scale of the note in question, or, if applied to a group of notes represented by one sign (such as we shall describe further on), of the highest note in the group. These were initial letters of various Slavonic words applied with relation to each of the four trichords of the scale. We will take the second group first—that which is called *Mrachno* or *dark*. The *pomjéta* for C consisted of the letters ГН (GN) representing the words *gorázdo nizko* or *very low*. Sometimes it was represented by Г alone. For D we have Н representing the word *nizko* or *low*. For E we have С (the Slavonic letter S), representing the word *sredno* or *middle*, this note being the middle of the whole scale. Often this note was also represented by (·) a mere dot. For the trichord *nizko*, or the lower three notes, we have in the case of the two lowest notes the same marks with the addition of a mark added to the left hand corner ; while for the note B,

the highest of the group, we have the Slavonic letter Tz, with what meaning I have not as yet been able to discover. Going on to the third group of three notes—that called *svjétlo*, or “light,” we have for the lowest note F the letter M, for *mrachno*, *dark*, that is to say, relatively to the other two of the same group; for G we have II, the Slavonic letter P, standing for *povýshe mráchnago*, that is to say, a little higher than the dark one; and for A we have B (the Slavonic letter V), the first letter of the word *vysóko* or *high*.* The last or highest group of three notes (*Tresvjétlo* or *very light*) are represented by the same letters surmounted by a dot, or as it was called in Russian, *s' khokhlom*—i.e., *with a tuft, or crest*.

Now, when these *pomjéty*, or little red marks, are applied to the forms which we have already seen, we shall have not only their length, but their exact height or depth in the scale clearly indicated. Thus, on the first line of the diagram, we have the full scale of *krjuki* or hooks, and on the next specimens of notes which have already been described, with the *kinovarnaja pomjéta* added to them.†

We must now go on to some of the more complicated forms, which were usually constructed out of combinations of the previously described forms contracted into single figures, in order to save space on the parchment. Thus we have constructed out of the *zapjatája* or *minim*, the *golubchik*, or “little dove,” two ascending crotchets, sung *piano*, and the *skaméitza*, or “little bench,” also two ascending crotchets. The distinction between these two is one which I have never seen indicated in any other system of notation. It is that the *golubchik* is to be sung from the throat, but the *skaméitza* from the chest. Either of these could be modified by the addition of a perpendicular line: thus we have the *golubchik tikhi*, or “quiet little dove,” equivalent to two minims and sung *piano*; and the *skaméitza tikhaja*, the “quiet little bench,” representing the same notes to be sung from the chest. For two descending crotchets we have the *stopitza s' ochkom*, or “little foot with a dot.” The dot in this case must be carefully distinguished from the *otjazhka*, which as we saw was equivalent to the dot in our notation. In this case it has quite a different signification, meaning that the *stopitza*, or single unaccented note of a *minim*, is divided

* It will be seen in the diagram that two forms are given of this letter. The one in brackets appears sometimes, but the preceding form is the more usual, as this is the way the letter B itself was usually written at this period.

† In each case I have placed the interpretation in our notation immediately above the corresponding signs. It will be seen that by means of these marks, the pitch of each note in the scale is definitely fixed, whereas without them it was in the case of accented notes only approximately shown, and in unaccented notes not at all.

into two descending crotchets. In the case of the *krjuk*, or accented minim, its place is taken by the *podvjérka*, or "mark placed below." Thus we have the *krjuk svjétly s' podvérkoju*. If this mark is placed under the centre it is called *podchashie*, or "cup underneath," and the whole figure *krjuk svjétly s' podchashiem*, or "light hook with cup beneath."

I have by no means exhausted the numerous forms employed to represent two notes on one syllable. But my aim is not to give a complete list of these forms, but rather to give specimens in order to illustrate the general character of this system of notation. I must, however, give one more example in which the *kinovarnyja pomjety*, or "red marks," are once more employed, and will then proceed to more complicated forms. We have seen that the *golubchik* represents two notes rising in the scale and next each other, that is to say, with only the interval of a tone or semitone between them. But supposing the interval required should be a third, the same form is used; but in addition to the ordinary *pomjéta* giving the exact degree in the scale of the upper note, we shall find beneath it the two Slavonic letters Λ O, which are the first letters of the verb *lomitj*, to break. An example of this will be seen in the diagram with the title *Golubchik s'lomkoju*.

Of still more complicated forms, I shall not give more than one or two characteristic specimens. First, then, I would mention a modification of the *krjuk* itself, called *dva v' chelnú*, "two men in a boat," which represents two crotchets followed by a minim as shown in the diagram. Then there is the whole family of *strjely* or "arrows." We have the *strjélà prostája* or "simple arrow," three ascending notes, the lower two crotchets, the upper one a minim, sung *piano*. This form may be used on every degree in the scale, and always leads up to an accent. Next we have the *strjélà gromkaja*, or the *loud arrow*, which represents the same notes sung *forte*, and the *strjélà kryzhevaja*, representing the same notes beginning *piano*, with a *crescendo* ending in a *sforzando* on the last note. Then we have still more elaborate forms, such as *zmiitza* or "the little serpent," consisting of four notes always sung *piano*; the *pauk* or "spider," representing five notes, as seen on the diagram, and many other far more complicated forms.

This then is a slight sketch of the notation used in the Russian Church up to the middle of the seventeenth century. I have given at the bottom of the diagram a short example of its application to the text, with the interpretation in modern notation immediately above. The only further modification which it received was the addition of *priznaki*, or *marks*, which indicated which of the three notes in any

trichord any neume belonged. Any neume which had no mark was understood to belong to the lower of the three notes, one which had the mark in the middle to the middle note, and one with the mark on the extreme top or left the upper note.* These are supposed to have been added with a view to printing the music without having recourse to the *pomjeti* in red ink: thus obviating the necessity of printing in two colours. As a matter of fact, this notation was not printed at that time, as it was superseded at the end of the seventeenth century by notation on an ordinary stave of five lines, while the Old Believers who retained the old notation never printed their music books. These *priznaki* or marks were, however, retained in the MSS., together with the red signs which they were intended to supersede; and they appear in all the books of those sects of the Old Believers, which have accepted the corrections in the actual spelling of the words made in the early part of the seventeenth century, but who yet retain the ancient wording even when clearly wrong and often ungrammatical, and who still have a wholesome horror of the Western and Popish invention of Antichrist—the stave of five lines. The magnificent printed edition, which has lately appeared under the auspices of the Russian Society of Amateurs of ancient manuscripts,† contains both the red *pomjéti* and the black *priznaki*. This edition is largely used by the *Jedinovjértzi* or Old Believers who retain the old ceremonial, but have come back to the Church, and also by some less fanatical sects of the *Popoffzi*, or Old Believers which have retained the priesthood; but amongst the more fanatical sects, and all the *Bezpopoffzi*, or sects which reject the priesthood, the *priznaki*, together with corrected spelling, are utterly rejected. It was fortunate for them that the red *pomjéti* were introduced before the time of the Patriarch Nicon, otherwise assuredly these would also have been looked upon as "marks of the beast" or "the footprints of Anti-christ," and their singers would have even more difficulty than they have at present in deciphering their old books.

I wish that I could have brought a choir of Russian singers here to-night to sing these melodies. It is the hope of many Russian musicians that they may yet become the basis of a

* Specimens of the application of the *priznaki* may be seen in the lowest line of the diagram, the first, third, fifth, and eighth notes (or groups of notes) have no *priznak*, and therefore represent the lowest note of the trichord, while the second and seventh have the *priznak* of the second note, and the fourth, sixth, and ninth of the third or upper note of the trichord. The specimen quoted is the opening passage of the *Oktikh*, and is the Slavonic translation of the Greek words Τὰς ἑσπερινὰς ἡμέρας εὐχὰς from Vespers on Saturday evening of the First Mode.

† A complete copy of this work is to be seen in the Bodleian. It was presented to the University by M. Pobédonostzeff, the Chief Procurator of the Russian Holy Synod.

really national school of music, just as the Gregorian melodies were to the Italian school of Palestrina, and the German chorales were to the school of Bach. More than half-a-century ago the Russian composer Bortnjanski suggested that these melodies be carefully reprinted and edited for use in the musical conservatoriums as *canto fermos* for counter-point exercises. At present the Holy Synod is doing all in its power to encourage their restoration in the church services.* The great difficulty is to devise a satisfactory system upon which to harmonise them. This, in my opinion, will never be accomplished until the scientific basis of the modes has been more fully investigated. But, as I said before, it would be presumption for me, a mere beginner in the study of Slavonic music, to attempt to solve the question of the modes. The matter is in good hands, and I have little doubt that in another ten years much more will be known about the question than has been at present discovered.

DISCUSSION.

THE CHAIRMAN.—Ladies and gentlemen, I am sure that we must all appreciate the amazing painstaking care which has been manifested by Mr. Birkbeck in the paper read to us this evening. All honest work must be sooner or later appreciated and meet with its reward. Some honest work is very much like sowing acorns; it does not produce a speedy crop, and I very much fear that the same remark must be applied to the work of our lecturer. At the same time we cannot but tender him our hearty thanks, and express our admiration of the wonderful pains he has taken in the preparation of his paper. Another feeling of gratitude that I experience within me just now is that I was born a happy English child, and have not got to learn all this complicated notation. Various attempts have been made of late to modify and simplify our accepted system of notation. I think, in view of what we have heard to-night, we had better remain as we are. At the same time that does not affect our interest in the subject which, complicated as it is, has been made as plain to us as it very well could be. I will, therefore, ask you to join me in thanking Mr. Birkbeck with acclamation for his paper. (The vote of thanks was carried unanimously.)

Mr. BIRKBECK.—I thank you very much for your kindness. If anyone would like to examine any of the manuscripts I

* The well-known Archbishop Nicanor of Kherson and Odessa was an enthusiastic advocate for their restoration, and devoted much of his time, even down to within a few weeks of his death, in teaching their proper execution in his choir.

have brought with me, I shall be happy to show them after the meeting.

Mr. BRIGGS.—I would like to ask Mr. Birkbeck whether the shorter notes are sung strictly to time, or whether they are only approximately shorter than the longer ones?

Mr. BIRKBECK.—I think one may say only approximately so, they are not sung strictly to time. Still, a distinct difference in the length of the notes is expressed in the notation corresponding approximately to our semibreves, minims, crotchets, and quavers; and in the new editions which are printed on lines, these relative lengths are preserved.

Rev. C. R. TAYLOR.—It seems to me that this Russian music has one very great advantage, which I hope it may never lose, and that is, that the music is subservient to the accent of the words. I wish we could introduce a little of that into our own singing. I wonder whether it would be possible for the lecturer to play to us any of those airs, or modes, or tones?

Mr. BIRKBECK.—I am afraid that that will be out of the question, as it is very difficult to play any of these airs without singing the words, from which the melody receives its time and rhythm, and I am not the happy possessor of a voice sufficiently good to do the melodies justice.

Mr. B. D. KNOX.—Is there any general indication as to the time?

Mr. BIRKBECK.—It is nothing like $\frac{3}{4}$, $\frac{2}{4}$, or common time, or anything of that kind. There is no barring of any kind. The time is taken from the words, the rhythm is wholly dependent upon the text.

Mr. JACQUES.—Is the bottom note of the scale drawn by Mr. Birkbeck the keynote, or is it only the scale from which the groups are taken?

Mr. BIRKBECK.—It's the whole gamut from which the scales of all eight modes are taken. There are only twelve notes used altogether. As I said just now, attempts have been made, especially by Professor Razumoffski, to make out a scheme of finals and dominants for the different modes, but the whole theory breaks down entirely when you examine the music. He also gives the number of notes or portion of the gamut which are used in each mode, but I don't know whether it is anything more than mere chance that some of the melodies in one mode happen to extend over a larger portion of the scale than those of another mode. The fact of the Kieff modes (also eight) being in this respect quite different from those of the *Znamennij Rospjév* makes me think that the distinction between the different modes has nothing to do with finals and dominants, or the portion of the scale employed.

Mr. WEBB.—Do I understand that the early influence was Byzantine?

Mr. BIRKBECK.—I think the principle upon which the Slavonic musical system was built was of Byzantine origin. The general tradition of the Russian Church, according to which the accented syllables have a higher note, and the unaccented a lower note would, doubtless, seem to have come from Constantinople, because it is part of the universal tradition of the early Church, as we know from the words of St. Athanasius. The notes always rise with the accent. I don't think that either the scales of the modes or a single complete melody can have come from the Greek, for the simple reason that the accent of Greek and Slavonic is entirely different. It would, therefore, be impossible to fit the same melody to both the Greek and the Slavonic text.

Mr. WEBB.—In the harmonised chants, or whatever they are called, do they convey the idea of a dominant with a melody grouped around it?

Mr. BIRKBECK.—In this matter the custom is very vague, and differs in each monastery. No rules have ever been drawn up for the harmonies. The custom of harmonising the melodies was gradually copied from the West, and crept in from Kieff. I have a lot of the old plainsong from the Pecherskaja Lavra at Kieff harmonised in different ways, printed as it has been used there for the last two hundred years. It is full of the most fearful fifths and octaves. In many monasteries in Russia, they often sing the melody in octaves, and then add another set of voices, singing a third above the upper one, when the melody sounds like this—(example given)—in tenths and octaves, and then they add below this a kind of obbligato bass for a few voices trained to do it. And sometimes they elaborate still further by having a few voices singing an independent part above the whole melody. But the whole matter is at present in the greatest disorder, some monasteries adopting one style and some another. They often rather spoil the melodies by sharpening some of the notes, so as to obtain leading notes, and thus get them into minor keys.

Mr. JACQUES.—There is reason to believe that ancient singers did occasionally sharpen notes, though they were not so written down. How far that went, it is impossible to say.

Mr. BIRKBECK.—I am of opinion that this practice only arose when harmonised settings of the melodies were introduced. And this I believe to be true of Russian and Western ecclesiastical music alike. In the West, one fruitful cause of introducing modifications of this kind was the efforts of the early contrapuntists to escape the difficulty of the tritone. They tried to avoid it in all kinds of ways.

One of the best instances I know of this, is the treatment which the cadence of the old melody of *Lauda Sion* has received—



Here according to the old plainsong rules there is no tritone, because the B \natural and F \sharp do not occur in the same neume; you will however find in later copies, that in Italy they flattened the B, in France they sharpened the F, and in Germany they ran the B \natural up to C to avoid the effect of the tritone. They all have different ways of getting rid of that tritone. This proves, I venture to submit, that it must have been sung as it was written, for if there had been a traditional method of escaping from the difficulty, we should not find different versions in different countries, but they would have all avoided the tritone in the same way.*

Mr. FINLAYSON.—I should like to ask the lecturer as to the deep bass voices. Are they confined to Russia alone, and are they artificial voices? Mr. Birkbeck also speaks of their being in perfect tune. Here, in England, experience teaches us that they do not always keep in tune. I would be glad to hear an explanation of this.

Mr. BIRKBECK.—In regard to the deep bass voices, I would say that most of them come from the South of Russia—chiefly, I believe, from Bessarabia. In the choir I referred to in Moscow they sing down to low G. I have watched them do it. On one occasion when I was looking over the music of one of these contrabassi, I saw a long pedal note coming on low F—



It lasted over six bars. I waited to see what the singer would do. At first he sang the note as it was written, and held it so for two bars, and then he deliberately dropped an octave, and held it on for the remaining four bars. It was a perfectly clear note. The next day I asked the same man to sing the scale through to me with a pianoforte. He went down to the deep A, then the G, a soft note, and finally the F, a very soft note. At the same time they could be distinguished. I mean the A and G below the bass staff, of course. They treat it just like the double bass. They sing the melody in the bass part simply an octave below—as far as their voices can go.

Mr. JACQUES.—Three or four years ago, I remember Mr.

* See "Proceedings of the Musical Association," 1887-8. Page 149-150.

Slaviansky came over with his choir, and we were then all struck with the great depth of the bass notes.

Mr. BIRKBECK.—In Murray's guide to Russia, they say of the choir in the St. Isaac's Cathedral at St. Petersburg, that it sounds as if there were double-basses playing arpeggios all through the music. While I can't say that they have produced exactly that effect upon my ears, I sometimes have heard notes reminding me of some deep soft reed stop on the organ. In parish churches, where there is nothing grand in the way of a choir—often only four or five men and boys—it is really wonderful how they keep the pitch through those long services. I have tried them with a tuning fork, and at the end of two hours, notwithstanding the heavy strain of the service, they were in exactly the same pitch they began in. There was no gradually getting flatter and flatter. The deacons generally begin on tenor C in intoning the litany, and the suffrages have an inflection at the end, much in the same way that we hear them in our churches.

Mr. JACQUES.—This maintenance of pitch supplies a strong argument to those who attack our "equal" temperament. Singers not having an equally tempered instrument to sing to, do not sing the tempered scale.

May 12, 1891.

T. L. SOUTHGATE, Esq.,
IN THE CHAIR.

SOME OBSERVATIONS ON MUSIC IN LONDON
IN 1791 AND 1891.

By WILLIAM H. CUMMINGS, F.S.A.

IT is sometimes interesting and useful for individuals to take a retrospective view of their past doings, and it may be that certain valuable lessons can be gathered from a review of past epochs in the history of the art of music—it is a somewhat commonplace observation which we frequently hear that “things were different a hundred years ago.” I propose then to speak for a few minutes on the condition of music and musicians in the year 1791. Let us fancy ourselves standing in Hanover Square in May, 1791; over there at the corner stands the building, originally built in 1774, by Gallini, John Christian Bach, and Abel the viol-di-gambist. There Bach and Abel had been giving concerts until 1782, but in consequence of the withdrawal of the patronage of Lord Abingdon they had been obliged to discontinue them. Art seems at this period to have existed only when patronized by the rich and noble. Bach and Abel having failed pecuniarily, a few professional musicians banded together to give “professional concerts”; these commenced in 1783, but happily a very superior violinist, Salomon, jealous that his excellence and talent had not been recognised by the professional concert-givers, started an opposition in those same rooms in 1786. These rival venturers were energetic in devising means for attracting the musical public, and W. Cramer, the violinist, who headed the “Professional Musicians” concerts, wrote to Haydn, then in Esterhatz, offering him any terms he chose to ask to appear at their concerts. Salomon, equally on the alert, and anxious to secure the most notable musician of the day, sent Bland, the music publisher, to make an engagement with him. These blandishments for the time had no effect, and Salomon, determined to conquer, went himself to Esterhatz; but owing to the binding nature of Haydn’s engagement with Prince Nicolaus, could not prevail. Leaving Haydn he commenced his return journey to England, but on his arrival at Cologne received the news of the death of the Prince; he immediately returned and found Haydn in Vienna. This was the end of the year 1790. The king of Naples was then a visitor in Vienna, and being a performer on the lyre, he had commissioned Haydn to compose a concerted piece for that instrument. Salomon’s persuasive tongue and purse prevailed on Haydn to start with him

immediately for London, whereupon Haydn requested an audience of the King of Naples in order to present his composition. The King, pleased to receive the MS., said to Haydn: "the day after to-morrow we will try them." Haydn expressed his sorrow that it would be impossible, as on that day he would start for England. The King very indignantly reminded Haydn he had promised to go to Naples, and forthwith left the room in anger; but shortly afterwards he recovered his good nature and gave Haydn a letter of introduction to his Ambassador in London, the Prince Castelcicala. He also presented the composer with a valuable tabatière. To enhance the interest of this little story, I have brought with me a manuscript of the *Notturno*, referred to as written and presented to the King of Naples. The MS. is most valuable, being in the handwriting of the composer.

Haydn and Salomon left Vienna on Wednesday, 15th December, 1790, and crossed from Calais to Dover, where they arrived (happy omen!) on New Year's day, 1791. They came direct to London, and Haydn went to live with Bland, the music publisher, at 45, Holborn; but soon afterwards he removed to Salomon's house, 18, Great Pulteney Street. Salomon had engaged Haydn to compose six Symphonies, and to direct the performance at the pianoforte—according to the custom of the time. The first Concert took place on 11th March, 1791; the orchestra numbered forty performers; the Symphony chosen was the one known as Salomon No. 2, and the composer stipulated that it should commence the second part of the programme. The *Adagio* was encored—a most unusual occurrence. The journal of the day says the success was brilliant. Haydn had a Benefit Concert on the 16th of May, when the receipts amounted to £350. At this time, two rival opera factions, headed respectively by the King and the Prince of Wales, divided the fashion of the town. The King's party supported the performances at the Pantheon, and the other party those given at the King's Theatre in the Haymarket. The latter had in vain endeavoured to obtain a licence to perform opera, the King having an opinion that two opera companies were not required in London. They, however, managed to obtain permission to give "entertainments of music and dancing," and on March 26 the house was opened with Vestris as ballet-master and Haydn as composer. Several of his compositions were performed in the season; amongst them were Symphonies, Quartets, and a Chorus, "The Storm," composed to words written by Peter Pindar. Haydn was in the habit of retiring for the necessary quietude for composition to the beautiful country then to be found in Lisson Grove. On the 30th of May, Haydn had a second Benefit Concert in the Hanover Square Rooms, when he conducted two Symphonies and the

"Seven Last Words." He also published an Italian Cantata, "Ariadne a Naxos." This vocal scena was sung by Pacchierotte, the composer accompanying on the pianoforte. Here is an interesting copy of the Cantata, published by the composer at his lodgings in Great Pulteney Street, and signed by him. In this merry month of May Haydn was an honoured guest at the annual festival dinner of the Royal Society of Musicians, for which auspicious and memorable occasion he composed a March. He also attended the Handel Commemoration Festival held in Westminster Abbey. The performance was given by orchestra and chorus of unusual magnitude ; and during the performance of the "Hallelujah Chorus" in "The Messiah," when the vast audience reverently stood up, it is recorded that Haydn, absolutely overcome with emotion, "wept like a child, exclaiming, 'Handel is the master of us all.'" Doubtless this experience brought forth fruit, and suggested the composition of the "Creation," a work of perennial beauty, which some unhappy mortals have called a collection of childish tunes. We must console ourselves with the reflection that it is said of children, "for of such is the kingdom of Heaven."

In the beginning of July, 1791, Haydn went to Oxford to receive the honorary degree of music, and three grand concerts were given ; Haydn presided at the organ, and at the last evoked an enthusiastic welcome by appearing in his doctor's robes. The Symphony played at the second concert is now known as the "Oxford" Symphony—a composition of 1788. This was substituted for a new Symphony which had been prepared but could not be sufficiently rehearsed. Haydn returned to London, and remained here until November, when he was invited to the Lord Mayor's banquets at the Guildhall. One was given by the outgoing Lord Mayor (Sir John Boydell) on the 5th ; the other on the 9th by new Lord Mayor John Hopkins. Haydn, in his diary, has given us an amusing picture of civic sociability. He says : "After dinner there was a ball in three different chambers ; the first was devoted to the *haute noblesse*, by whom minuets were danced. I could not possibly remain there, both on account of the heat and the detestable music performed by an orchestra, consisting of two scrapers and a violoncello. In the second chamber they danced country dances ; the band there was somewhat better, because the noise of the tabours drowned that of the violins. The third chamber, which was the largest, had a band somewhat more numerous and less vile. The gentlemen were seated at several tables in drinking parties. There was some dancing, but not to the sound of music, because the songs bawled at the tables, the toasts and the laughing, and the gabbling and the clamouring, totally prevented the instruments from being heard."

We have arrived at the month of November, 1791. On the 25th of the same, Haydn went by invitation to Oatlands, as guest of the Duke of York, who had two days previously married the Princess of Prussia—a girl of seventeen. Here we find the Princess singing, and playing the piano—the Prince of Wales performing on the violoncello—all the music being Haydn's, who himself also played and sang several of his own songs. I have brought a volume containing the songs published in London by Haydn. You will see that he retained an interest in their sale by signing the copies. It is right to mention that these songs were not published before 1792, at which time Haydn had removed to Bury Street, St. James's.

We have now nearly got to the end of music in London in 1791. I may mention a curious custom then prevailing which lingered on for a few years afterwards. You are, of course, aware that the fashion of wearing swords as a part of full dress still continued; and it seems that a special sword was always provided at a grand concert for the use of the instrumental solo performers. This sword was in the charge of an attendant known as the "sword-bearer"; and, when a solo player was about to display his talents, he was presented, by the proper official, with a sheath and hilt, with which he was begirt before he entered the orchestra; and when the solo was concluded the hilt and sheath were returned to the official, who immediately hung it up over the chimney-piece of the private room, where it remained until required by the next soloist. I must not forget that Dussek, the pianist, had arrived in England in 1790, and was performing in London in 1791. He was in friendly intercourse with Haydn, who wrote a letter to Dussek's father from London in the following terms: "Most worthy friend,—I thank you from my heart that in your last letter to your dear son you have also remembered me. I therefore double my compliments in return, and consider myself fortunate in being able to assure you that you have one of the most upright, moral, and, in music, most eminent of men for a son. I love him just as you do, for he fully deserves it. Give him then, daily, a father's blessing, and thus will he ever be fortunate, which I heartily wish him to be, for his is remarkable talent.—I am, with all respect, your most sincere friend, JOSEPH HAYDN.—London, February 26, 1792." There is a curious account in a diary of the period of Dussek's first appearance in London. This was at the theatre, and, being Lent season, it was customary to give Oratorios on Wednesdays and Fridays—the first and second parts being divided by some secular or instrumental piece: "A pianoforte of Broadwood's was then brought in with as much ease as a chair, and immediately after Dussek followed, supported by John Cramer, whose

father stood forward as leader, Salomon and other great men of the day being grouped around him. The applause was loud as a welcome. Dussek, now seated, tried his instrument in prelude, which caused a burst of applause. This so surprised the stranger that his friends were obliged to desire him to rise and bow, which he did somewhat reluctantly. He then, after reseating himself, spread a silk handkerchief over his knees, rubbed his hands in his coat pockets, which were filled with bran, and then began his Concerto. Near the end of the first movement there was always a "cadenza," which gave the performer an opportunity of displaying his powers in *bravura*, or to show off any peculiar or particular merit that he possessed. In this instance, Dussek finished his cadence with a long shake and a turn that led to the 'Tutti' to finish the movement, and he was rapturously applauded." It may be noted that Dussek had four notes in the upper octave added to his pianoforte.

I may now connect 1791 with 1891, by telling you that for many years I enjoyed the intimate friendship of a clever old organist and pianist, who was present at Haydn's first concert in Hanover Square. He has often told me how his youthful mind was astonished by seeing, when the Royal Princesses arrived, the Court attendants lift up the hoops of their dresses in order to facilitate their passage through the doorways, which, though apparently of ample width, did not suffice for the extended circumferences then in fashion. My old friend, I should tell you, was born in 1778, and died in 1873, having been a pupil of Dr. Worgan, and organist of one church eighty-one years. I may mention in passing one piece of sad and depressing news which arrived in London at the end of 1791: it was that Mozart, the incomparable musician, had died in Vienna on the 5th December. A glorious sunset, whose brilliant rays lighted up the path of the mighty musicians who were to make a name and fame in the succeeding century.

And now to contrast the picture of 1791 with 1891. Many points will at once occur to you in gauging this difference. Let us think, for a moment, of the facilities for musical education which then existed. At that time London did not possess a single academy for the instruction of youth in the art of music. The noble institution, within whose walls we are now assembled, was not established until some years afterwards. Now, in addition to the Royal Academy of Music, we have another chartered institution—the Royal College of Music, at Kensington. Then there is the Guildhall School of Music, an essentially civic institution, with an enormous number of students; and almost every part of London, whether you go North, South, East, or West, has its own efficient conservatoire. Then again in the matter of journalism. At the period we speak of there was not a single

journal devoted to the art of music. Now I am afraid to mention the number of musical papers, so numerous and varied are they. When we think of the societies for the advancement of the art, there were none in 1791, if we except the two series of concerts—one led by Salomon and the other by the professors of music, headed by the Cramers. What have we now? Take orchestral societies. There is the Philharmonic Society, which, for many years, has done so much for the advancement of the art, and I hope may continue to do so. (Hear, hear.) Then we have the orchestra conducted by Richter, of Vienna. Then there is another series of orchestral concerts, given under the direction of a capital musician, Mr. Henschel. Let us turn to amateur societies. At that time there were a few amateur performers, but no societies. Now we have the Stock Exchange Orchestral Society, an admirable institution, numbering a very large orchestra, possibly some 100 performers. Then there is the Royal Amateur Orchestral Society; and here we may refer to a very curious picture. You will remember Lord Chesterfield writing to his son, who was in Italy, and warning him against music and musicians. While in the land of music and of song his son was welcome to hear as much as he pleased, but on no account was he to take any lessons or active part in music itself. That should be left to plebeians. For a gentleman to have anything to do with music was the most contemptible thing possible, and he wound up by saying: "I'd as lief see you with a pipe in your mouth as a fiddle under your chin!" A contrast to the present day, when we consider the title of the forementioned Royal Amateur Society, and the very active interest taken in our noble art by a Prince of the Royal blood. Then we have the "Wandering Minstrels," "Strolling Players," and doubtless many others with which you are all familiar, but which I cannot recall to mind just now. Again, if we turn to Church music. Let us take the two great buildings of the metropolis—St. Paul's and Westminster Abbey. What was the condition of music then? The choir of St. Paul's consisted of eight boys and six men. A very different state of affairs from what we find now. A similar arrangement prevailed at Westminster Abbey—six men and ten boys. Then the Temple Church, the only other Church for music in those days, also had a very indifferent service, consisting of a few Psalm tunes. That we know from the collections published at the period. There is one ecclesiastical establishment, which does not seem to have progressed in the same way, unfortunately, but has considerably retrograded. I say this with great shame and with great regret because it is a stigma upon us. We must not forget that, whatever the failings of the Hanoverian race, they have ever lent a

fostering hand to music. Now, in the case of the Chapel Royal, what are the facts? The choir, which at one time numbered forty, is now reduced to eight. I confess that whatever retrenchment may be necessary, and no doubt it is necessary in certain directions, one cannot be too lavish in the worship of the Almighty, especially in such an establishment as that of the Queen of this realm. Then again, when you come to music publishers. There were about four in London at that time. Now they fill a directory. The same remark applies to composers. At present their name is legion. London then was content to know half-a-dozen composers. As to the question of quantity, the music produced 100 years ago was infinitesimally small as compared with that of to-day. At the present time it is impossible to cope with it. But when we come to the question of quality, results point the other way. In Haydn and Mozart the musical world, certainly, had great treasures. I say Haydn and Mozart advisedly, because nobody at that period remembered anything about Sebastian Bach's music. It would be impossible to find anything that could offend the very best taste in either of these two composers. Yet what they did was done with very moderate means, without calling in the aid of volcanoes from Vesuvius or upheavals from below. They were content with a very moderate orchestra; but how is it now? And, by the way, since the days of Haydn and Mozart we have had Beethoven, Mendelssohn, Schubert—names not to be mentioned with contempt; and if you look at their scores and those of Haydn and Mozart, what are they? They are all completed with strings, two or four horns, and two of each kind of wood and brass instruments, and three trombones; no more. Yet, what do we find now? I have in mind a concert with which I am to be associated. In addition to the two flutes we must have the piccolo, that glorified penny whistle; then the two oboes, the usual clarinets, besides which there is to be on this occasion an extra clarinet—a military one in E flat—which, of course, must have a set off in the shape of a corni di bassetto. Then there are the four horns, bass tuba, &c., while the two trumpets are also to be reinforced on this occasion by two cornets. Then, in addition to the grosse caisse, three kettle drums, &c., there is to be a triangle, and in order to make the thing perfect and angelic, to finish off, we are to have two harps. Of course this is quite a common thing now-a-days, and would be all very well if after the immense labour, expense, agitation, paper and ink, &c., commensurate results could be shown. But compare any of the compositions which are produced with so much effort and ostentation with any symphony you like of Haydn, Beethoven, and Mozart, and tell me if you get a return for your

money. I don't think you do. One little thing in passing which will doubtless have occurred to you. I refer to Broadwood's pianoforte. It is pleasant to read of our old friends having had their instruments at these concerts of a hundred years ago, and one cannot help wishing that it were possible to transport their pianofortes as easily now as it is recorded they were then. But I am afraid I ought not to detain you any longer, and I am extremely anxious to hear the opinions of several of my friends here. I see gentlemen fully capable of giving, perhaps, a more decided and better opinion than myself.

In conclusion, then, I would only suggest one other thing. It is reported that Gounod was recently asked what he thought of the present state of music with its complicated scoring, and of the exacting demands which were made upon composers; when he is said to have replied that he could not tell, but that he thought it not unlikely that the time would come when people would revert to the simplest form of all. He may be right, though, I am afraid, I shall not live to see it. Some lines occur to me just now in this connection, which I may be pardoned for repeating to you—

"The world becomes old,
Then to childhood returns;
But the soul to press on
Eternally burns."

I do feel that by-and-bye people will tire of this constant striving after effect, without the accompaniment of inspiration, and that, after a time, there will arise the genius who, with simple means, will carry us all captive. I should like, before I finish, to sing you one song. It is one of Haydn's, and is included in this volume of forty-four I mentioned in the beginning of my paper. It is called "Oh, tuneful voice." The words of the song were written by Mrs. Hunter. Curiously enough they were also set to music by Salomon, though, of course, the composition of the latter will not compare with Haydn's.

DISCUSSION.

THE Chairman proposed a vote of thanks to Mr. Cummings which was passed unanimously.

Mr. WALTER MACFARREN.—Mr. Chairman,—I rise with a good deal of diffidence, as this is the first time I have had the honour of addressing the members of this Association; but there are two or three things which occurred to me, and which I should be glad to give expression to. Referring to the year 1791, I believe it is a fact that the immortal Mozart

was engaged to Salomon to visit England, which visit was subsequently found impracticable owing to Mozart's ill-health, and that, as a consequence, Haydn was induced, as we have heard related, to take the place of Mozart. This circumstance induces some reflections as to what would have happened had the great Mozart come over and repeated the visit he first made to this country in the year 1764, when, as a little boy, accompanied by his elder sister and father, he spent, I think, as much as twenty months in London, and was feted and caressed by everybody, from the great downwards. Mr. Cummings has compared the advantages which the student of music enjoyed at that period with those which are offered at the present time. Now-a-days it is a very rare thing indeed to find any publication for the piano which extends beyond a matter of seven, eight, or ten pages, and I think most publishers will tell us that anything exceeding that is sure to be an utter failure. But how did the case stand in those days? I have in my possession some volumes consisting of the original editions published in London by Longman, Clementi, and such old firms, of the Sonatas of Dussek and Steibelt. Three and even six sonatas were issued together in one publication. What sale would there be for six sonatas published together at the present time? Would they repay the cost of paper and printing? The paper in those days was not of the most elegant description, and somewhat resembled the paper in which now-a-days brown sugar is wrapped up. It was not even smooth at the edges, and so these volumes need a great deal of attention to keep them free from dust. There is a good story told in connection with the rivalry of Dussek and Steibelt. In those days pianos were not strung with the solid metal strings of to-day, but with strings similar to those of the violin, some of which were covered. It is said that Steibelt gave a concert in the King's Theatre, at which he was to perform an inspired concerto "L'Orage." Some friends of Dussek got at the instrument and tampered with the strings, so that when Steibelt came to the grand part of the Storm, all the strings snapped with an awful sound. We must all admit that the progress in church music has been enormous. Even so late as the days of my choristerhood, the choir at Westminster Abbey mustered exactly the same strength as in 1791—*i.e.*, ten boys and six men, with this difference, however, that we rarely had the whole complement together. Mr. Cummings said there were no societies in 1791. Surely there were old madrigal societies?

MR. CUMMINGS.—I ought to have added the word "instrumental." There certainly were madrigal societies, but these were of a semi-private nature. With regard to publication, I do not know whether it would be possible

in these days to do what musicians did then. Dussek, Clementi, and Cramer were all music publishers. Dussek became a partner with Corri: Clementi with someone else in Cheapside. It is also the fact that when Salomon was in Vienna he saw Mozart, and positively concluded an engagement with him. He was to have come to London in 1792. In this connection it may be interesting to mention that Mozart once lived in the very fashionable quarter of Thrift Street, Soho, and while there published an interesting volume of Sonatas for violin and piano. Mozart, unfortunately, died at the end of the year 1791, which frustrated the visit projected for the Spring of the following year.

Mr. H. C. BANISTER.—Mention has been made of Haydn lodging at 45, High Holborn, from which address he published the collection of songs referred to. That house was occupied by Z. T. Purday, publisher; and it is a pleasant thing for me to remember that my first publication was issued from that house. I welcome any discussion which brings up the rather dishonoured name of Dussek. Within the last few weeks I have been censured for using the word "genius" with regard to Dussek at all, and have been reminded that it was too grand a term to use in such a connection, unless, indeed, the meaning of the term were lowered. I can only say that those who use such language cannot be familiar with Dussek's music. Of course he wrote a great deal for bread and cheese, and a great deal of his music is not worth looking at. At the same time, if anyone who takes the trouble to look at his finest works cannot see any genius in them, I do not know what genius is. As to Steibelt, though inferior to Dussek as a composer, some of his compositions have a great stream of melody. I have heard Potter, who was born in 1792, speak of Steibelt playing and causing the audience to hiss by breaking the hammers. Perhaps that was the occasion to which Mr. Macfarren alluded. I knew old Jonas Blewitt, who was a pupil of Haydn, very well; and it is pleasant for me to remember that I have shaken the hand of one who has grasped the hand of the great Haydn. It is a curious speculation as to how they managed to learn to play the pianoforte in those days. They had no technical studies, and did not even possess Cramer's studies, though I do not envy them that destitution. Still they did manage to play uncommonly well both Haydn's and Mozart's sonatas, to say nothing of Bach's fugues. This may be accounted for by the fact that the early forms of sonata that we know of, such as Handel's, for instance, were called "Lessons for the harpsichord," the music being written for the double purpose of learning how to play it, and then playing it. They apparently wrote no studies as a preparatory exercise to playing something else.

Mr. JOHN FRANCIS BARNETT.—I think there is one matter that might be mentioned in comparing the two epochs, and that is the wonderful advantage the present epoch affords in the facilities offered to the musical public in obtaining copies of what they require. I will venture to say that at the present time many of the works published up to the year 1791 are better known than they were even in those days—that is, by the masses of the people and not by individual musicians only. Novello, Augener, and many other publishers issue beautiful editions of composers, such as Bach and Scarlatti, in which we have, in a few volumes, the entire works of these composers. That is an advantage which was denied to the amateurs of a hundred years ago. Possibly some disadvantages have accrued to modern composers in this respect, as for the price of one modern composition a collection perhaps of twenty pieces by a classic composer can be purchased. At the same time, I do not think that even modern composers would care to return to the state of things existing in Haydn's time and the manner in which works were then produced. I think there has been a great improvement in the smaller compositions as compared with those of a hundred years ago. I do not mean to say that the improvement has been universal; but there are very many modern compositions of that character which would totally eclipse anything of the kind produced in those days, even by the greatest composers. This result, to my mind, is due to the influence exercised by such men as Schumann, Mendelssohn, and others. We have practically lost the sonata, as few composers care to write such works, and in that respect we have retrograded. Whether the sonata will revive as a popular modern composition remains to be seen.

Mr. CUMMINGS.—Mr. Barnett has touched upon one matter in connection with publication. Of course each generation must expect to profit by the legacies of preceding generations, and, naturally in these days, the copyrights of Haydn's compositions having expired, we get his music much cheaper; but even in Haydn's own days, I take it, the public were able to purchase such works very much cheaper than they do now. I have just looked in this volume containing, "Oh, tuneful voice." It is printed from four full plates of music, and I am bound to say is far better engraved than any music published at the present time, and I see it was sold at 1s. 6d. That was the publishing price, copyright, of course. I turn to Haydn's First Set of Canzonets for the voice, and I find that the publishing price of the whole set of six was 7s. 6d. You see these were copyright songs, and yet the price is by no means exorbitant, while the engraving is certainly of a superior kind. Another matter Mr. Barnett has touched upon, and that is the development of modern music, such as is to

be found in the examples of Grieg, and so on. This is not due to Schumann. It is partly due to the pianoforte having been so largely developed and popularized. It is also attributable to the fact that just at this very period a man, now almost forgotten, Corri by name, had invented what he called, "A new system of writing down the accompaniments which were to be played." Remember that up to that time songs had nothing but their figured bass. One was expected to make up accompaniments from the thorough bass which was there. This method had so many drawbacks that Corri, as he says, was induced to fill up the harmonies and give them a proper accompaniment for the first time. I think it is due to these two facts that composers began to write down their accompaniments as they wished them to be played, and consequently took the trouble to write very good and elaborate accompaniments. These two factors probably brought about a great improvement in modern romantic short pieces, whether vocal or instrumental.

Rev. C. R. TAYLOR.—There are two points of contrast which have not yet been referred to, though it is hardly necessary to expatiate upon them. In one respect we have advanced very much for the good; in the other, perhaps, for the bad. Mr. Cummings has referred to church music and the changes it has undergone, and I hoped he would have said something about parish churches. If we bear in mind the condition of affairs which existed in olden times, when the parson and the clerk controlled matters between them, and when the "parish orchestra" consisted of a fiddle and a flute, and compare it with the beautiful services that are to be heard, not only in London, but also in the country, the improvement is very marked indeed. We know what is done now, and that they have not only beautiful services, but that, at various times, they also produce oratorios in churches with full orchestras. The other point I thought of is the dreadful infliction of street music. I do not know what it used to be, but I certainly cannot imagine that it was ever as bad as it is now; and I trust, for the sake of musical progress, that something may be done to put down this ever-increasing nuisance of strident pianoforte organs, out-of-tune bands, and the like.

Mr. CUMMINGS.—In 1791 we also have accounts of street music. I am sorry to say that in that respect, too, we have gone in for additional accompaniment, so that here perhaps we might profitably go back to simplicity. In those days it was sometimes a flute, sometimes a fiddle or a bass-viol, but nothing more. Of course in the matter of organs there has been a complete revolution; and there is no doubt that the present street pianoforte or organ may be heard at the other end of Hanover Square, so strident is the tone.

THE CHAIRMAN.—Comparing 1791 with 1891, there is no doubt that we seem to have progressed in some things, whilst we have remained stationary in others, if we have not actually gone backward. Music has certainly become very complex, and it is quite possible that the outcome of it all will be a reversion to simplicity. Gluck, we know, went back to a simpler form, and his music still finds interpreters to-day, and still gives pleasure. "Orfeo" has recently been heard with delight at the opera house. Mr. Cummings has said that when Haydn came over here, the king thought that one opera house was sufficient. We find a parallel to this in the present opera house at Covent Garden under Mr. Harris. As to better means of education, undoubtedly enormous strides have been made in this direction, and I think we ought to be very grateful for it. Doubtless these facilities have induced an appreciation of music. Education, however, may go too far and induce people to imagine that they are intensely musical, and so swell the musical ranks with people who have no talent whatever. The amount of music produced is no test as to its quality. It has been pointed out that in the olden time the music principally written, especially for the pianoforte, consisted of sonatas and what we should call classical but deep music. In place of it we now have "Reminiscences" and "Pièces de Salon." Mr. Barnett has attributed that to Schumann. I think as time goes on and the style changes, so the taste for certain kinds of music changes with it. I doubt whether 100 years ago they would have been satisfied with the music of Purcell and that of his contemporaries. Since then times have changed again. It is impossible for men like Schumann and Mendelssohn to have lived without influencing the tone of music to-day; and it was doubtless owing to their great influence and the romantic feeling which is found in their works that classical music in a measure has, if not disappeared, at any rate received the go-by to a certain extent for pieces of more emotional and of a more sensuous character. As to cheap music, I think that comes simply from the enterprise and competition of the various publishers. As has been pointed out, some music of the olden time was absolutely cheaper than it is now. I should say that six pieces, especially songs, one of which we have heard sung to-night, published at 1s. 6d., would certainly now be published at 5s. But do not publishers put on the price in order to take it off again? Of course the paper, &c., is better. Mr. Taylor has alluded to the great improvement which has taken place in church music. There we shall all agree with him. Undoubtedly an enormous and vast improvement has come about; and we know that churches now endeavour to do what cathedrals did then. One hundred years ago they had neither singers nor the

materials, nor did they have such organs as we have now. There is one thing I cannot help regretting, and that is the disappearance of the old village bands. Those bands were very useful. Now they have almost all disappeared and the pianoforte has taken their place, so that in some respects we have lost where we have gained in others.

Mr. CUMMINGS.—I think we have had a delightful conversation. It is, no doubt, the great advantage of these meetings that we all have an opportunity of saying what we think of the various themes brought forward. I often wish that the papers could be shorter, so that the discussions might be more exhaustive. As to village bands and the comments made thereupon, I would remind you that I confined my remarks to London alone. As I would not care to have you go away with the impression that the music of the year 1791 was absolutely classical, I may mention that among the accounts of popular pieces that were played at that time was one by Dussek, called the “Flaxen-headed Plough Boy.” It was an air with variations, which has remained popular to this day, though at the time it never failed to bring down the house ; so that they had their faults in those days as well as we have now. All was not classical then, nor is everything vulgar now. With regard to the matter of publication, that is a very important question, and I should very much indeed like to have a big discussion here some night upon the question of cheap music, and connecting it with the consideration of the sight of the coming generation. At that time, not only did composers publish their music at a reasonable rate, but with very excellent engraving, and always in folio size. There was a certain publisher, I think Fought by name, who published popular songs, ballads, and so on, with three or four plates, folio size, at a penny a piece. We have not got beyond that. As to the so-called octavo editions of the present day, I think they are responsible for a very large proportion of the bad sight of the present generation. I think nothing can be more horrible than this style of production. Take any popular edition of modern composers. It is almost impossible to read the music if it is put upon a desk and the player is expected to read it far away from the keys. I am sure that a great deal of the bad sight of this generation is due largely to the habit of reading music at such a distance, printed on such a small scale, and I shall cordially welcome any movement which has for its object the ventilation and remedy of this serious defect.

JUNE 9, 1891.

W. H. CUMMINGS, Esq., VICE-PRESIDENT,
IN THE CHAIR.

*SOME DETAILS CONCERNING THE WORK DONE
IN CONNECTION WITH COMPLETING AND INSTRU-
MENTING SCHUBERT'S SKETCH SYMPHONY IN E,
No. 7, AS PERFORMED AT THE CRYSTAL PALACE
CONCERT ON MAY 5th, 1883.*

By JOHN FRANCIS BARNETT.

MR. CHAIRMAN, LADIES, AND GENTLEMEN,—It lately occurred to me that it might be interesting to the members of this Association to give a short account of my work in connection with the remarkable sketch Symphony in E of Schubert.

Some years ago, I was walking with Sir George Grove, then Mr. Grove, after a Crystal Palace Concert, towards his residence in Sydenham, when in course of conversation he told me that he had in his possession a very curious sketch of a Symphony by Schubert that had never been completed.

He gave me many interesting particulars concerning it; he described how the Introduction and a portion of the *Allegro* of the first movement were quite complete and fully instrumented, but that as the second subject was reached, it broke off into a mere sketch, as though Schubert's ideas came too rapidly for him to instrument.

He likewise told me that the sketch, which bears the date of August, 1821, was given by Ferdinand Schubert to Felix Mendelssohn, who, it is said, intended to have completed it, an intention which, unfortunately, he was prevented from carrying out by his premature death. It then came into the possession of Paul Mendelssohn, who some years later gave it to its present owner.

That Schubert would have completed this Symphony if his life had been prolonged, there is little doubt, but the sketch in itself being so complete, he probably felt that there was no danger of his forgetting the ideas and their intended treatment; he, therefore, must have put it aside for more pressing work. But, alas! a sad fate prevented him completing this work or the still more important unfinished Symphony in B minor.

There are some who might regard the last-named work and the sketch Symphony in E as being left under similar conditions, and, that as it would be presumptuous to attempt to add a *Scherzo* and *Finale* to the unfinished B minor, so the one now under consideration should have been left untouched.

I think, however, that it will be at once perceived how different are the conditions under which these two works were left. The two movements of the B minor are quite complete in themselves, they can be performed whenever there is a desire to hear them; but the sketch Symphony, as left by Schubert, was only curious and interesting as a manuscript. It could never be performed; the public were probably ignorant even of its existence. To attempt to complete the unfinished B minor, would mean to add two absolutely new movements, the ideas of which would not be Schubert's, excepting a few notes that remain in sketch of the beginning of a *Scherzo*. The sketch Symphony in E, on the other hand, was left in one sense complete; every movement is finished in sketch, every subject is given, not a bar is omitted from beginning to end, there is nowhere an absence of the intentions of the composer, although there might be much difficulty in interpreting those intentions. The plan of the edifice was left, but the elevation was never completed.

It therefore seemed a pity to leave the work merely as a curious MS., and the thought consequently occurred to me, that it might be interesting to attempt the harmonising and instrumenting of the ideas Schubert had left in sketch. I did not then act upon these aspirations; in fact, although the conversation, above related, set me thinking, it was some considerable time before I began to seriously entertain the idea of carrying out what I had at heart.

At length I was favoured with a sight of the original MS. I there and then sat down at the piano and endeavoured to fill in some of the harmonies, but found to my disappointment that I could make very little of the sketch. With the owner's permission I took it home with me, promising to guard it as a treasure of great worth.

The next day, I made a somewhat serious attempt at unravelling the mystery as to the harmonies Schubert had intended for the sketched-out portions of the first movement. I found that the self-imposed task I had taken upon myself was far greater than I had anticipated. At the very outset I met with a difficulty in the second subject of the first movement. It is at this point that Schubert leaves off fully scoring the movement, and gives merely notes of melody without accompaniment. Fortunately, the sketch contains many indications of the character of the instrumentation

required ; thus, with respect to the second subject, Schubert gives the melody notes to the clarinet, but there is no bass nor any indication of the harmonies to accompany it.

I will proceed to play this melody, first as left by Schubert, and then with the harmonies I have added. Before doing so, I may mention that the difficulty in this case consisted in presenting the melody in such a manner as to avoid any effect that might sound monotonous, as the melody is of such a nature that very little variety of harmony is possible :—

No. 1.* *Allegro.*

This melody is repeated in alternate phrases of two bars for flutes, oboes, and clarinet. To this I added a semi-contrapuntal accompaniment of staccato quavers, given to the celli, and afterwards dispersed among the other stringed instruments. The short figure for the violins which comes in between the sections of the melody I have, of course, worked in with the quaver passages. Such actual indications of Schubert's intentions I prized beyond measure ; they were to me so many landmarks guiding me on my way, and lessening the chances of my going astray.

* The small notes in this and subsequent quotations are those added by Mr. Barnett.

Once having got into the feeling of this second subject, I proceeded with my task smoothly enough: suddenly, however, I was confronted with what seemed to me a species of musical puzzle. It was one of those puzzles that the more you endeavour to find a clue to it the more bewildered you become. The enigma, in this case, is rendered the more remarkable from the fact that Schubert has here filled in much more than one line of the score. We have the first and second violins, the violas, and the flutes represented. The first question to be solved was—did Schubert intend this point to be left as it stands, or was any instrument omitted which was necessary to complete the effect?

As the point only consists of a few bars, I will play it over as left by Schubert—

No. 2. VI. Fl.

pp
Viol. &c.

After trying several methods of fathoming the mystery, I found that adding a sustained B \flat for the basses at once made the whole passage perfectly intelligible. I, therefore, adopted this note as a solution of the problem, the more readily, as throughout the sketch, with a few exceptions, it is the ground notes of the harmonies that are omitted, even when other notes besides the melody are given. I will now play this point with the addition of the B \flat just mentioned—

No. 3.

Celi e Bassi.

A few bars after what I have just played, Schubert in his sketch gives us fragments of the second subject, alternating with a triplet passage for the violins. He marks it *fortissimo*. He likewise gives one bar and a quarter clue to the bass.

Here, then, we have two indications of Schubert's intentions; first and most important this fragment of bass, which at once settles what harmonies are to be adopted, and then the *fortissimo*.

I have so far gone somewhat minutely into the peculiarities of the sketch, and my method in treating it. To go through the entire Symphony in this manner would, I am afraid, be trying to your patience, and moreover occupy far more time than is placed at my disposal. I will therefore confine myself to the most striking features of the MS.

There is one very remarkable departure from the Binary form in the first movement of the sketch that we are discussing, and that is, that the first subject, instead of being again introduced in the tonic key after the development, is omitted altogether, and in its place occurs an episodical phrase on the tonic, which in the first part is heard on the dominant, just previous to the entry of the second subject. This condenses the form very considerably, as the second subject is heard in the recapitulation much sooner than if the usual form had been followed.

In the first part, the key of G, and not the dominant is chosen for introducing the second subject; in the recapitulation, however, the tonic E is employed.

I will play over this point, which is very interesting, from the fact that the figure for the violins above the theme of the second subject is fully given by Schubert in his sketch—

No. 4. VI.

Cl.

Cor.

&c.

The first movement concludes with a *Coda* of considerable length. Unfortunately for me, Schubert left little more than the flute part of this *Coda*, so that all the work for the strings had to be thought out. However, the general character intended is sufficiently clear.

I now come to the *Andante*, which I consider to be the gem of the work.

In place of attempting an analysis of this movement I will play through the movement from the pianoforte transcription of the Symphony I made, and which is published by Breitkopf and Haertel.

Before commencing, I will show you how it is set forth in Schubert's sketch—

No. 5. *Andante.*

A musical score for piano, featuring two staves. The top staff uses a treble clef and the bottom staff uses a bass clef. Both staves are in common time (indicated by 'C'). The key signature is A major (three sharps). Measure 11 starts with a dynamic 'p' (piano) and includes a fermata over the first note of the treble staff. Measures 12 and 13 continue the melodic line, with measure 13 concluding with a repeat sign and a '3' above it, indicating a three-measure repeat. The score ends with '&c' (and so on).

I may mention that the melody is given to the violins without any indication of what harmonies were intended; and also that, after the first subject is done with, the short episode, together with the second subject which follows (see No. 6), is entirely Schubert's, who has in this case evidently fully completed the instrumentation of this point. Thus, for nine bars, I had a rest from my labours, for which I was only too thankful.

No. 6. VI.

No. 6. VI.

p Fl. Ob.

Celli e Bassi.



I will now go on to the *Scherzo* [and here I pass over the incident of the temporary loss of the MS., which I recounted at length to the meeting].

I have brought with me a copy of the sketch in which all Schubert's notes are given in red, on which copy I filled in the additional instrumentation in black ink.

I will now play over some of the red notes that open the *Scherzo*, and afterwards the manner in which I have interpreted them—

No. 7. *Allegro scherzo.*

A musical score page for Violin (Vi.) and Cello/Bass (Cello). The Violin part starts with a rhythmic pattern of eighth and sixteenth notes. The Cello part begins with a sustained note followed by eighth-note chords. The key signature is E major, and the time signature is common time. The score includes dynamics like 'stacc.' and 'p' (piano).

The Trio of this movement is very interesting, the more so, as Schubert has left very clear indications of his intentions; in fact, with the exception of a double pedal of a fifth for the celli, I have practically left Schubert untouched, merely carrying on instruments of which he has given the commencing notes. I will endeavour to give you an idea of this Trio—

Ob.

A musical score page for Oboe (Ob.), Viola (Viole.), Bassoon (Fag.), and Cello (Celli). The Oboe and Viola play eighth-note chords. The Bassoon and Cello provide harmonic support with sustained notes and bass-line chords. The key signature is E major, and the time signature is common time. The score includes dynamics like 'p' and 'f' (fortissimo).

A musical score for piano, showing two staves. The top staff uses a treble clef and the bottom staff uses a bass clef. Both staves are in common time and A major (indicated by a key signature of one sharp). The music consists of eighth-note chords. Measure 11 starts with a forte dynamic. Measure 12 begins with a piano dynamic. The score ends with a repeat sign and the instruction "etc." at the end of the second measure.

I will not detain you with any analysis of this *Scherzo*, as it is really, more than any of the other movements, written in the usual form.

IV. The *Finale*, in many respects, resembles the *Allegro* of the first movement as regards form, inasmuch as the opening theme is not repeated after the development at the point the recapitulation begins; otherwise, to all intents, it is written in the form of a first movement, with a repeat of the first part.

It opens with a pretty subject of a rhythmical character, in 2 time, started by the first violins, preceded by four bars of introductory repeated chords, which clearly establish the kind of accompaniment Schubert intended to be associated with the melody—

This subject and the tributary phrases with which it is united, occupy some fifty bars, all given to the first violins. After the first three or four bars just mentioned, with which the movement opens, there is nowhere any indication of chords or bass to accompany the theme, with the exception of a triplet of quavers and a minim for the bassoon, which occurs between two of the phrases. These notes for the bassoon, as they appear in the original MS., have a very

odd appearance, standing as they do alone with apparently unnumbered bars of rest before and afterwards—

No. 10.

p cres.

dim.

Fag.

After this, we come to a *forte*, in which short ascending scale passages form a special feature. This is still given to the first violins. There are, however, in the middle of this matter a couple of bars for the bassi, which give a clue to the harmonies to be employed for some time afterwards.

This section of the movement, although simple in character as regards the first violin part given in the sketch, admits of considerable elaboration of a free contrapuntal character. Such a master of part writing as Schubert, would scarcely have accompanied these passages by simple subservient harmonies, and the probability is that he would have introduced into the other parts far more complicated writing than I have attempted.

So far, it presents the simple character to be met with in the final number of a Haydn Symphony; but at length we come to a point used as a bridge to the second subject, in which the genius of Schubert pre-eminently asserts itself.

It is fortunate, as the interest of this portion is for some bars centered in the bassi and cellos, that Schubert has sketched out what these instruments have to perform. He has, moreover, indicated some repeated semiquavers for the second violins.

Here then we have a purely Schubertian point, and left in

such a manner that there is no doubt as to the intention of the composer:—

Vl. 2.

No. 11. *pp*

Celli e Bassi.

Fl.

&c.

Previous to the second subject being introduced, there is a refrain of the first subject, accompanied by a pizzicato scale passage for the celli. The second subject is given to the flute, and consists of short detached phrases, which, as they stand in the sketch, from their persistent reiteration sound almost meaningless. However, I found that by accompanying them with pizzicato quavers, the figure which Schubert had himself suggested in the scale passage I have just alluded to, these short phrases at once became intelligible—in fact, they give scope to some very interesting sequences—

Fl.

No. 12. *pizz.*

Str.

Viole. *pizz.*

&c.

A few bars later, a phrase of four bars, which is first heard as the concluding notes of some chromatic harmonies given to the wind by Schubert, is repeated in various forms as many as seven times, and leads to a *fortissimo*, in four bars of which Schubert has added the bass to the melody notes. These four bars are interesting, as the only harmony that is possible for filling in the inner notes of the chord, is of a decidedly modern character. It is the chord of the $\frac{6}{4}$ with a ninth added for the upper note.

I will play over these four bars as Schubert has left them, and then give you the manner in which I have interpreted them—

No. 13.

That the harmony, which accompanies the first and third of these four bars, is decidedly more modern in character than would be expected of the period in which Schubert wrote, is undeniable.

At the conclusion of the first part there is a so-called bridge to introduce the repeat, and after the repeat, it similarly leads to the development.

This bridge, although simple, is very beautiful. That there was something in it that Schubert wished to preserve, is evident from the fact that he has fully scored for the wind the bars which lead up to the repeat.

The development, although not very extended, contains some very interesting matter. After a brief extract of the first theme, Schubert takes the first section of the phrase and treats it with great variety.

The working out of this theme begins in C with the basses, and after being taken up by other instruments is made the central feature of a prolonged point for the horns, with a kind of obbligato for the flute.

All that I have added to this point is an octave B for the first and second violins of reiterated notes, afterwards changing to a G sharp. This leads up to a climax marked *fortissimo* by Schubert, culminating with a detached passage for the violins, repeated three times, and which have a very extraordinary effect when played as left in the sketch.

As this will be the last example I purpose giving you, I will ask you to allow me to play over the whole of the

development I have been describing, first as Schubert left it, and then with the harmonies and counterparts I have added—

No. 14.

VI.

I will not now enter into a minute analysis of the rest of the movement. Practically speaking, I have laid before you all the subject-matter of this interesting movement. What follows is the return of the scale figure in the original key, in place of the first subject, and the re-introduction of the second subject in the key of C, in place of the key of G, in which it is first heard.

After the recapitulation has been fully gone through, we come to a *Coda* of considerable length, in the early part of which the point for horns and obbligato flute referred to is again introduced.

Some bars after occurs a broad *rallentando*, when the short scale passages are again introduced for the violins.

As the remainder of the sketch furnishes very little clue as to the intentions of Schubert, with the exception of the scale passages just mentioned, I began to fear that I should have been unable to finish the work with sufficient breadth of effect.

I was unwilling to introduce anything important that was not Schubert's, yet something more than the scale passage for the violins was certainly wanted to furnish interesting materials for such prominent instruments as the trombones; for Schubert has indicated that trumpets, four horns, and three trombones are to be employed at all events. The score is laid out for these instruments, and the vacant lines are ready for them. At last, to my great joy, I found that the first subject would combine quite naturally with the violin part given by Schubert, and thus I discovered an effective part for the trombones and horns, furnished by Schubert himself, although not actually indicated by him at this point.

Having started this idea, I was able to work in portions of the opening theme throughout the remaining bars of the *Coda*.

I have endeavoured, whilst giving an outline of the principal features of this interesting sketch, to explain the manner in which I set about the task of completing the work.

How Schubert himself would have worked out his sketch, had his life been prolonged, it is impossible to say. As in the case of Beethoven, his style during his latter years underwent a marked change, and had he lived longer, it might even have been influenced by impressions received from such composers as Spohr and Mendelssohn, who at the time of his death were coming to the fore. He would thus have entered upon the completion of the Symphony in a different spirit to that which animated him when he wrote the sketch. This, however, is too speculative a subject to enter upon. I will, therefore, only say that I have been, to a larger extent than would appear by a superficial glance at the sketch, indebted to Schubert himself for the manner in which I have carried out a great part of the completion of his work. An instrument dotted down here and there in addition to thematic matter, an occasional note for the basses, and now and then, although rarely, bars fully or partially instrumented; these have helped me on my way, and enabled me to complete the sketch, and present it to the musical world in the form that it was played for the first

time by Mr. Manns's Orchestra at the Crystal Palace Concerts of May 5th, 1883.

Before concluding, I cannot refrain from thanking you for the kind manner in which you have listened to the various details it has been necessary to place before you, in order to explain to you clearly the nature and scope of the task I took upon myself.

I am happy to say, that I have with me the autograph of the sketch of Schubert, kindly lent by Sir George Grove, and likewise my own completed score, both of which I shall have the greatest pleasure in showing to you.

DISCUSSION.

THE CHAIRMAN.—I am sure that you will all agree that to-night we have had a more than usually interesting paper brought before us, and I cannot but express a strong feeling, in which, I doubt not, you will all concur, that Mr. Barnett has done for Schubert, in a loving way, a work which could not have better been done. You have had the opportunity of hearing his details and examples on the pianoforte; I, also, have had the advantage of following his beautiful score here, by which one can see at a glance which is Schubert's work and which Mr. Barnett's, two colours of ink having been used, and it is most interesting to observe in what a masterly way Mr. Barnett has accomplished the great task he had set himself. I think it a noble thing for a man to do to sacrifice himself for the preservation of a monument of a more ancient worthy. Mr. Barnett's name will go down to posterity in connection with a splendid achievement, and I only regret that in playing his illustrations he did not commence with the first note of the symphony and continue to the end. I hope you will look at this score presently, even before you look at Schubert's own autograph, so as to see what a splendid work has been completed and how admirably it has been done. It seems that every note wanting has been discovered, and not only that, but Mr. Barnett has very happily and aptly put each note in its right place. I do not think too high praise can be given him. We are deeply indebted to Sir George Grove for allowing the manuscript to be brought here. I saw Sir George this morning, when he told me that nothing but ill health and an attack of rheumatism would have prevented his coming here this evening to learn something of this bantling, of which he has been the foster-father and Mr. Barnett the foster-mother.

A cordial vote of thanks was then offered the lecturer.

JUNE 9, 1891.

*COMMUNICATION ON THE ANCIENT EGYPTIAN
SCALE.*

By T. L. SOUTHGATE.

MR. CHAIRMAN, LADIES, AND GENTLEMEN.—It may be in your remembrance that, at our last November meeting, I had the honour to read before the members of the Association a paper on “A pair of ancient Egyptian Double-Flutes,” and thanks to the kindness of Mr. Flinders Petrie, the famous Egyptologist, who had discovered them in the coffin of a mummy, I was enabled to show you these musical relics, still playable though three thousand years has passed since the priestess to whom they belonged had played her last song upon them.

On that occasion I ventured to point out to you the great importance of Mr. Petrie’s find, so far as the history of music was concerned. These old pipes revealed what has been hidden for ages ; they have helped to teach us what were the intervals employed in the scale of sounds used by the dwellers in the land of the Nile, at a period long anterior to the civilisation of the Greeks, from whom it has been assumed by historians that we have derived the intervals now employed in modern music. The sounds you heard from those slender flutes, and the fac-similes played before you by Mr. Finn, told us plainly that the intervals we use must have been derived from Egypt, the Greek philosophers having only been the intermediaries in the descent of music, and not the inventors of the scale as has been commonly supposed. But as those two pipes only possessed one three, and the other four holes, the actual notes yielded were not sufficient to enable us to build up a complete scale system—that is to say, treating them as fundamental tones ; of course, if the tubes were over-blown, or the little straw reeds with which they were sounded were manipulated by the player, other tones—indeed a complete scale was obtainable. You may perhaps remember that the respective lengths of the several vibrating columns of air in the two pipes corresponded to the notes F sharp, G, A, B flat, C, D ; and it was found that these notes were in closer accord to our modern tempered scale than are the notes played on the chanter of the Scotch bagpipes. Here, then, was a starting point ; the discovery of these tubes, and the lesson they taught, suggested to me an extended investigation of the ancient Egyptian tonality, together with some examination of their musical system. I am not yet prepared to completely formulate this. The

subject is an extensive one, and the materials lie scattered in so many countries that a considerable time must elapse before we can pronounce definitely on music as it existed in Egypt three thousand years ago. I prefer, to-night, simply to tell you what my studies have taught me, and to make suggestions for the members of our Association to consider, rather than to attempt to furnish a precise account of the art of music as it existed in ancient Egypt.

First, I should tell you that there are old Egyptian pipes and fragments of pipes in the British Museum, and the national collections at Leyden, Berlin, Paris, Turin, and Florence. Thanks to the curators at these various museums, I have obtained minute measurements and tracings of a number of these old pipes; and thanks to my friend, Mr. Arding, I have obtained from Egypt a bundle of the stalks of the *Arundo Donax*, from the ancestors of which large water grass these old flutes were made. My first duty was to select a stem as nearly as possible in agreement with the original I wished to copy, then I burnt with a hot iron the holes in close accord with the measurements supplied to me, thus obtaining fac-similes of the flutes, the notes of which I was desirous of ascertaining. I have brought here to-night several such fac-similes, enough, I venture to think, to permit us to generalise from, and judge of the Egyptian scale. Of these fac-similes some are open from end to end, and are thus flutes proper—as we now understand the term—others are reed blown, as were the Lady Maket flutes. In the flutes proper, we must get the true notes the Egyptians heard; there can be no doubt of this, for acoustic laws do not vary. Mr. Finn will endeavour to play these to you in just the same way as the wall frescoes in the tombs tell us they were played of yore—viz., by blowing obliquely across the top—the very manner the Nay is still sounded in Egypt. With regard to the smaller flutes which will not speak in this way, and must have been furnished with a vibrating reed, the result is not quite so satisfactory. It is difficult to adjust the size and the strength of a reed, especially of the arghool kind, which these old people employed (that is of our clarinet type); it is not easy to make it exactly accord to the varying lengths of a column of air vibrating in a tube, and differing as the various finger holes are unclosed. Sometimes the reed, and sometimes the column of air each gains the mastery; so the notes yielded are uncertain, and we get all sorts of harmonic instead of fundamental tones. But speaking generally, and for our purpose of ascertaining and comparing intervals, we shall obtain enough information to map out a theory.

You shall now hear these flutes, and I will call your attention to the intervals.

The first example is a specimen of the long flute of the Egyptians, called by them "sébi"; it was a great favourite with the people, and was made in several lengths, its pitch of course varying with its length. The one here is a fac-simile of a flute in the museum at Florence, and it possesses five finger holes. The notes yielded are a series of semitones.

No. 1.

The tube measures 2 ft. 4 in. long, and three-quarters of an inch diameter inside; A flat is its fundamental note, then we get a series of five semitones, making with the holes closed six notes in all. I may just say that a man could not reach to play a flute more than seven inches longer than this, and such a tube would sound F, fourth line on the bass stave.

No. 2.—This one is in the Louvre; it is 2 ft. 3½ in. long, and its bore is $\frac{11}{16}$ ths of an inch. It has four finger holes, and the notes are—

No. 2.

The first interval is a major third, and then comes three semitones.

No. 13.—Here is one copied from an example in the British Museum. Its length is 19 inches, bore half-inch, and it has four finger holes. Its notes are—

No. 13.

corresponding to the first five notes of our scale of E minor.

Now we come to some specimens of tubes of much smaller bore, and these are blown with a reed. In some cases I have made these reeds, but to some of the flutes I have fitted modern Egyptian reeds sent me from Egypt. Of course the reeds inserted add to the length of these pipes, and lower the pitch of them considerably.

No. 9.—The original of the first is at Turin; it measures 20½ inches, its bore is only $\frac{3}{16}$ ths of an inch. It has four holes, and its notes are—

No. 9.

You will observe the first interval is a minor third; then we get two semitones, and finally a tone.

No. 20.—Here is another from Turin; $14\frac{1}{4}$ inches long. It possesses six finger holes, and its notes are—

No. 20.

Here we start off with a major third, and then comes four semitones, finishing up with a tone. The notes are—

No. 27.

The original of this is also at Turin. It measures $12\frac{1}{2}$ inches long, is $\frac{1}{16}$ ths of an inch diameter, and has six finger holes.

The first interval is a tone, and then there are semitones up to E flat.

No. 31.—This is at the Louvre, it measures $10\frac{1}{2}$ inches, and $\frac{9}{16}$ ths of an inch diameter, and possesses six finger holes. The notes are—

No. 31.

Here the first interval is a semitone, then a semitone, tone, tone, then a fourth followed by a tone.

The Lady Maket pair of slender double-flutes measure $17\frac{1}{2}$ inches each. Furnished with reeds cut from stalks of straw, the four-hole gives—

The three-hole—

I commented on these intervals at our November meeting. Although there are some breaks and larger intervals, the reason of which we cannot yet satisfactorily explain, it is impossible to hear these flutes without coming to the conclusion that the Egyptians distinctly possessed a chromatic

scale, though it does not necessarily follow that all their music was of a chromatic kind. They had the notes as we have them, and, like us, they could use them if so minded. I would call your attention to the large interval found in several cases between the natural note of the tube and the first finger-hole uncovered—this is usually a third. I may also remind you that besides the notes you have heard, the upper octaves are available on the pipes, just as they are on the modern flutes, oboes, and clarinets.

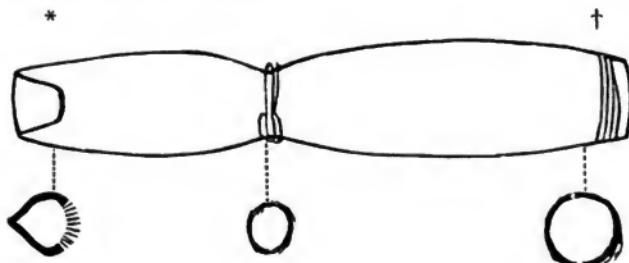
I have now to show you two fac-similes of a flute, in my estimation, more wonderful than any of the others. My attention was drawn to this flute by Mons. Victor Loret, Professor of Egyptology at the University of Lyons, author of "L'Egypte au Temps des Pharaons," and of an article on the old Egyptian flutes in the French *Asiatic Journal*. This original flute was found at Akhmin, the ancient Panopolis, in December, 1888, and was sent to the learned and well-known Egyptologist, Mons. Maspero, by Mons. A. Frénay, the consul for France at Akhmin; another similar flute discovered at the same time remains in the possession of Mons. Frénay. This remarkable flute is 10 inches long, its internal diameter is $\frac{5}{16}$ ths of an inch, and it possesses eleven finger holes. There was found with it what Mons. Loret terms *un bec mobile*; I shall have some special observations to make to you over this. From the dimensions Mons. Loret supplied I have made some fac-similes; tracings of these were sent to Paris for Mons. Maspero's examination as against the original, and were returned to me corrected, so that I am sure the fac-similes before you are absolutely accurate. Eight holes are bored along the top of the flute for the four fingers, two are directly underneath for the thumbs, and one hole is at the side; after some puzzling, and a suspicion that the flute might have been made for some old musician, the possessor of eleven fingers instead of ten only, I have come to the conclusion that this side hole was stopped with the first joint of the first finger of the right hand, the second joint of the same finger stopping the hole at the top. Over this peculiar flute I have had a long correspondence both with Mons. Maspero and Mons. Loret. Its present owner ascribed it to the period of the 18th Dynasty, about 1500 B.C. From evidence at hand I now think he is right, although judging from its singular completeness I first thought the flute showed signs of Greek influence, and that it might have been brought to Egypt by some immigrant not earlier than 300 B.C. But I now believe it is much older; you shall hear that it possesses a complete chromatic scale, and more than that, at its upper part it has two quarter tones. The moveable beak or embouchure found with this flute offers a problem for solution, and I think it furnishes an answer to a mystery

that has long perplexed those who have studied the ancient flutes. Below is a drawing of this mouthpiece sent me by Mons. Maspero. I may briefly describe it as a bulb or cocoon, $3\frac{1}{2}$ inches long by $\frac{1}{2}$ -inch diameter, squeezed together in the middle and tied with string, so the inside diameter at that part is contracted to $\frac{1}{4}$ of an inch. This mouthpiece is open from end to end; one part bears signs of wear through having been put into the player's mouth, and showing teeth marks, while the other end is protected by fine string wound round it, and covered with bitumen, to make all tight. This end fitted into the flute, and thus the two were attached together. Besides writing to Messrs. Maspero and Loret, I communicated with M. Frénay in Egypt as to his example. This gentleman seemed to regard the embouchure as a species of flageolet head. Mons. Loret thought that it might be intended to serve the same purpose as the cupped mouthpiece of the trumpet. Mons. Maspero offered no explanation of the embouchure further than to say that the *étranglement* in the middle was not natural, but had been produced on the cane by tying string round it while it was still growing.

Now permit me to go a little farther afield. I have said that the discovery of this curious embouchure may help to solve a mystery. It is this: there exist several vases of the Etruscan and Greek periods on which are represented players on flutes furnished at the top with a sort of long bulb or cocoon; sometimes more than one of these curious bulbs interpose between the flute proper and the mouth of the player. Many examples of vases on which are painted male and female players on such flutes are to be found in the Greek vase rooms, Nos. 2, 3, and 4, at the British Museum. I may cite as fine specimens E, 370, a vase depicting Dionysos sacrificing at an altar against which stands a satyr playing one of these flutes furnished with two bulbs; his face is protected by a *capistrum* or *phorbeia* to prevent his cheeks bursting with the pressure of the wind. No. E, 143, also exhibits a similar player with protecting band. E, 292, is a beautiful vase, it shows a flautist, harper, and player on the lyre. Other examples are E, 190; E, 785; and F, 184, where a flautist plays to a party of ladies on the double pipes with a bulb at their ends. In room 3 is a beautiful Kylix E, 23. Here are three figures of women playing the double flutes, having bulbs at the end; one of these has finished her task, she has withdrawn the pipes from her mouth, holding one in either hand, and stands awaiting a laurel crown which is about to be bestowed on her. In this room is also a platter in the well-known black ware, on which is painted Silenus holding the two pipes in his hands and adjusting the bulbs on one of them. Over the top of the wall cases is a representation of the remarkable frescoes from the Etruscan tomb of

Tarquin at Cornetto ; here are three full-sized figures of players on the double-pipes, and the reeds employed with them are clearly shown. Mr. Hermann Smith has called attention to some of these figures ; and he has made a guess that the office of the bulb which could be detached was to hold the reed with which the flute was played. I believe he is right ; this was the mission of the bulb, the additional lengths shown serving as lengthening pieces to temporarily lower the pitch of the pipe, and so set it in another mode or key.

First, I would mention that our Museum possesses a veritable fragment of such a bulb, but it is in too dilapidated a condition to form an opinion as to its precise use. I say fragment, because I believe it is only half its original size ; it is hollow, of about the size on this drawing, and its walls are so thin that it has to be handled carefully in order not to crush it. Thanks to the courtesy of Mr. A. H. Smith, of the Museum, I was enabled to examine it carefully. This ancient relic was found in a tomb near Eleusis, and there was found with it two curved flutes of wood ; in the embouchure of one of these there is undoubtedly a portion of a bulb fixed, in all probability the very bulb I have been describing. It is difficult to conceive how a reed could have been fixed in this ; but I think the more perfect example Mons. Maspero possesses shows how this was done.



Here is a drawing of it, its exact size. There is still some bitumen adhering to it. This is the end which went into the player's mouth (*), and this is the end which went into the flute (+), fitting it air-tight by reason of the waxed thread wound round it, and which still remains on the bulb. You see, they knew the use of waxed thread to make flute-joints tight 3,400 years ago. Now, please look at the centre of this ; observe the bulb has been artificially squeezed so that a passage of only $\frac{3}{16}$ ths of an inch is left. I will not waste your time in speculating, but at once say—surely it must have been to hold tightly the vibrating reed, easy to put in and to withdraw ; the bulb was a safe place to put so delicate a thing in, and by placing it there, the player could sound his flute without enduring the disagreeable sensation

of having the reed vibrating in his mouth. Let me point out that this is just what is done in the bagpipe. The reed is placed in the box of the chanter, the drones in their several boxes; the player simply blows into a reservoir of wind supplying the different departments of his instrument. Surely this is the solution of the bulb mystery! I think the *capistrum* supplies further evidence if we need it. No great pressure of wind is required for true flute-blown instruments, but for a strong reed a great pressure is required to make it vibrate, and hence the necessity for the protecting *capistrum*. These pipes must have been reed-blown, and as no reed is seen attached to their ends when they are represented held in the hand and out of the mouth of the performer, it is a fair inference to draw that the reed must lie concealed in the bulb. May I remark that the flute players had a box to keep their reeds in the old time, just as our oboe and bassoon players have now. You will remember the text: "Judas was a thief, and had the bag," from John xii. 6. Now the word our translators have rendered by "bag" is in the Greek text *Γλοσσόκομον*—*i.e.*, literally "a tongue-box," from *γλοσσα*, a tongue, and *κομεω* to take care of; this was the convenient receptacle Judas used to keep the money in, and no doubt such tongues or reed-boxes were common.

I will ask you to be good enough just to glance at these two drawings. This is taken from a vase called a Krater, used for mixing wine; it represents Euterpe adjusting the bulbs to her flutes before playing; one, you see, is complete, she is pressing the bulb down on to the other. The second example represents a flute player engaging in a musical contest; each tube is furnished with a single bulb, and the performer wears a *capistrum* round his face, bored with two holes to admit the ends of the bulbs into his mouth. Mr. Hermann Smith has been good enough to lend for reproduction here the engraving depicting this. It is taken from an interesting series of articles he is writing in *Musical Opinion* (January number, 1891) on the "Making of Sound."



Though these Greek vases are connected with a period quite 1,200 years posterior to that when Mons. Maspero's flute was played, I have brought them to your notice on account of the lessons they teach, and for the analogy that we may safely draw between these Greek bulb flutes and the ancient Egyptian specimen which you shall now hear. I want you particularly to note the intervals; in order that there may be no doubt as to these, I have prepared two specimens, one of these is furnished with a reed, the other with a flageolet head. Let me say that in Rosselini's valuable book on Egypt, plate sixty-six shows a flute with five holes, and possessing a whistle head like our flageolet, or the embouchure of a flue organ-pipe. The results from the two methods of exciting the air column are almost identical. First, Mr. Finn will play on the flageolet blown; we have—



Please observe that between the G \sharp and the A, we get another note, as near as I can measure it is a quarter tone between the G \sharp and A.

Now hear the specimen blown with a reed; only here we differ from the ancient possessor of the instrument in putting the reed in the mouth, and not placing it in a moveable beak as the old flute possessed. The notes are—



Again we get that strange enharmonic interval (*) at the third hole from the top. Why or how it was employed I cannot tell you at present. The F \sharp is only approximate.

It is but right I should tell you that some of the notes we have obtained from these flutes do not exactly agree with the results of the investigation by Mons. Loret, who has most kindly furnished me with every information. But Mons. Loret could not get his open flutes blown in the ancient way, as Mr. Finn has succeeded in sounding them; and for the reed blown flutes he used instead of an arghool, an oboe reed. I think that explains the difference. We have no certainty that such a double reed was used in Egypt, the arghool type we know was employed. At this late hour, I need not take up further time by recapitulating what you have heard from the fac-similes of these ancient Egyptian flutes, and I think I may sum up the net result in a single sentence. You will have noticed that the

intervals of the open flutes, so far as they go, are chromatic, and so are most of those yielded by the reed blown specimens. I will not stay now to dwell upon the breaks in the various scale, or comment on their significance, but I will conclude by saying, that as the greater must necessarily include the less, so the practically perfect chromatic flute you have just heard proves that long, long before the Greeks possessed any defined scale at all, the older Egyptians were using every note we employ in our modern music. Whatever may have been their music—and that has yet to be thoroughly investigated—the intervals they made use of do not differ from those of which our modern highly developed music is compounded. We owe our scale to that wonderful, mysterious, and most ancient country, Egypt.

An interesting piece of evidence as to the late employment of a concealed reed may be noticed in a beautiful Spanish MS. of the thirteenth century in the library of the Escorial. It is entitled, "Cantigas de Santa Maria," and is attributed to the King Don Alonso el Sabio. Besides a quantity of music, there are a series of drawings representing fifty-one musicians of the period, each playing a different instrument. These miniatures have been published by Señor Aznar in his splendid work, "Indumentaria Española." Among the performers are three playing on instruments which I think we are justified in considering contain reeds, placed in boxes in the embouchures. There are several double instruments; one player is furnished with a triple-flute, and there is a bagpipe with a chanter and five drones! I must not dwell on this most interesting MS.; from the players and instruments depicted, it conveys to my mind the impression that the instruments came into Spain through the Moors, and thus we get another link tracing music to an Egyptian source.

After any discussion that may take place is finished, I should like to show you two curiosities I have here. One is a flute of about two hundred years old, sent me by a friend from Japan; the other a beautiful old English Recorder belonging to Mr. Galpin, a member of our Association. You may remember that Shakespeare often speaks of the Recorder, and this interesting species of the tenor flageolet was for a long time a favourite instrument among our people.

DISCUSSION.

THE CHAIRMAN.—The first thing that occurs to me after the performance on these flutes is to express my gratitude at not having been born a few thousand years ago a sweet Egyptian child or having belonged to their Philharmonic Society. At the same time, we are very much indebted to Mr. Southgate for entering so heartily into this abstruse subject. I confess it is one that I do not in the least feel competent to enter upon. I shall, therefore, be glad if gentlemen here, interested in the subject, will give us their opinions. I only hope that Mr. Southgate will continue his investigations, so that by-and-bye he may be able to show even more complete results than he has been able to lay before us to-night.

Mr. BANISTER.—I think we are also under obligations to Mr. Finn for his admirable services this evening.

Mr. JOHN THOMAS.—Before a more elaborate discussion with regard to these Egyptian flutes is entered upon, I would wish to call attention to an incident with reference to the bulb. A few years back, two ancient Welsh instruments were found in the Island of Anglesea. One was called the "Crwth," which, doubtless, everyone has heard of. The other was called the "Pibgorn," which, translated into English, means the horn-pipe, and, probably, the dance tune may have taken its name from that instrument. It is a peculiarly constructed little square pipe, and has six holes. But what I particularly wish to call attention to is the mouthpiece. In the drawings before us our lecturer has placed the reed in the Egyptian flute, and then fastened the bulb over the reed, leaving the reed in the centre of the bulb. The Pibgorn is similarly constructed. In this little instrument the reed was inserted, and then a sort of lid was placed over it. It was evidently a piece of the horn of a goat, and although it fitted on to the pipe, concealing the reed, it appeared only to be placed there for the protection of the reed; but on putting the whole thing, with the lid on, to the mouth, by means of great exertion the reed could be made to speak. I consulted Mr. George Horton, the eminent oboist, upon the subject. He was greatly interested in the instrument, which he had never seen before, and assured me that the scale was the pentatonic, showing pretty clearly that it had not found its way from Egypt—judging from the scales of the Egyptian flutes submitted to us this evening. The point, however, I particularly wished to bring to your notice was the similarity of this sort of lid to the bulb of the

Egyptian flute. I may add that the Pibgorn and the Crwth were both shown at the great exhibition of musical instruments at Kensington, and may still be seen at any time, they belong to a private gentleman in Wales.

Mr. BLAIKLEY.—I have very little to say with respect to the particular branch of the subject Mr. Southgate has brought before us this evening. He very kindly gave me a *fac-simile* of the flute to experiment upon, with a view to aiding his researches if possible. However, I have not been able to give the necessary time to the matter. With regard to the side-hole, evidently it was closed by one of the lower joints of the finger. The same thing existed in the mediæval Rackett. In a section of the Loan Collection at the Royal Military Exhibition last year there was such an instrument, and in two cases, I think, a single finger had to close two holes. The instrument was thicker than the thickest here to-night, and was made of ivory. The tube doubled itself many times, and the hands had to grasp it in the most awkward manner to close all the holes, several holes had to be closed in addition to the usual one to each finger. Another view may be taken of the matter. A side-hole like that may have been intended for alternative use, and it may have been plugged when not required, in the same manner as was done with oboes and bassoons two or three centuries ago. As to the bulb arrangement, no doubt Mr. Southgate's is the right explanation. But the protection to the reed might have another object in addition to the one explained. Such an arrangement would tend to keep the reed free from the saliva of the mouth, which saliva would have a tendency to clog the reed. With regard to the intervals given, I must confess that my own ear is not quick enough to grasp the closeness of approach to our scale there may be in what we have heard to-night; I mean to say that, for my own part and in my own judgment, the accuracy of the approach cannot be relied upon except by careful measurement. I hope Mr. Southgate may have an opportunity of recording the actual vibrational numbers so as to determine an average after two or three trials. I think that would be the most satisfactory way. This would put the matter beyond controversy as to the scale.

Mr. HERMANN SMITH.—The information which Mr. Southgate has given us to-day is certainly of very great interest to me, because some years ago I first started the idea that these bulbs, said to have been intended for ornamentation, concealed a reed, and I had an opportunity of going with M. Mario, of Versailles, to the British Museum and pointing out the evidence upon which I built my theory, and he fully agreed that that must have been the purpose of the bulbs. And the same system has come down to us in the Pibgorn

as well as in the Crumhorn, a series of instruments which all had a concealed reed, so that we have now proved that at the very earliest times the same system of concealing a reed in this manner obtained—*i.e.*, going as far back as the fourth century B.C. There is a very large gap between that time and the period when Mr. Southgate's instrument is supposed to have originated. It would seem we not only have in the Greek system the musical scale, which is similar to that of the Egyptians, but we also have the identical methods of the instrument employed by them, particularly in the Lady Maket flutes, where we had the interval of the minor third, and this we find in all these flutes. I took measurements of those at the British Museum referred to by Mr. Southgate, and had specimens made from them, and there was found on these pipes an indented band, evidently for the purpose of sustaining the pressure of putting the reed into the pipe. These pipes are now twisted, but originally they were perfectly straight. There are other flutes in the same case discovered by Mr. Newton, and they have a branch standing out from one side with a perforated hole, which branch works aslant into the tube. Now these flutes were supposed to be blown across like a transverse flute, but a consideration of the holes told me very plainly that that could not be. I believe that the reed was placed in this slant tube and used just in the same manner as in other flutes. The flutes happened to be double ones, one cylinder working upon another, the outer cylinder being cut into sections, looking much the same as a caterpillar, and it occurs to me that this is really a representative of the bombyx. M. Mario, in a museum in Naples, came upon four flutes, and was allowed to take exact copies of them for the purpose of presenting them to the museum at Brussels. These flutes were of this same double cylindrical character, a cylinder of ivory and then one of metal over it, sections of this latter were capable of being turned round by the metal ring so that any section could be turned to cover the hole which was not in use. These four flutes were each of them found with certain holes covered, and from these we get an idea of the scale or rather mode of music that was played when flutes were popular in Pompeii. For those interested in the matter I have illustrations with me. Into these flutes he inserted a reed, according to his idea of arghool reeds, and obtained from them the scale, and the question remains how far we are allowed to suppose that the arghool type of reed was the predominating one, or whether it existed side by side with reeds of the oval type. M. Mario came to the conclusion that they existed together; it is probable that the reed was of a kind which is now used in Japan, and which has the appearance of having been cut off the top of a finger of a glove. It is open at the top, and that gives you an idea

of the shape of the reed. It is broad at the bottom and pinched at the top, and may be $\frac{5}{8}$ ths or $\frac{1}{4}$ -inch at the bottom in width, and when the tube is pinched together and left to dry the vibrating operation is caused. All over Asia and India there were reeds of a similar type—E flat, and B flat, or A, seem to have been the foundation notes of all the ancient scales. With regard to these Egyptian flutes, the point I wish to refer to is that in the Halicarnassus and Pompeii flutes you find these intervals in the scale—this minor third.

Mr. SOUTHGATE.—In response to what Mr. Blaikley suggested, I should tell you that these intervals have been tested against a very carefully marked wooden pitch pipe, and the notes I have put down were very close approximations to this. At the top of the scale they varied a little, and that I ascribe to the difficulty of getting a reed which answers to the vibrating air column. I will endeavour to carry out the suggestion advanced by Mr. Blaikley as to the exact testing of the intervals. May I say with regard to the flute with rings that a perfect one was discovered by Cesnola in the Island of Cyprus, but, like in many other instances, his collection was declined by our Government and allowed to go to New York. It had revolving rings on it, and in the rings were certain holes by which the player could obtain the enharmonic scale.

Mr. SMITH.—In these flutes of Pompeii also there are those quarter tones.

Votes of thanks were then passed to Mr. Southgate and to Mr. Finn.

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